PIDS Survey of Philippine Development Research III

Health and Development: Determinants and Consequences	*Alejandro N. Herrin and Maricar Ginson Bautista*
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PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES

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The Philippine Institute for Development Studies is a nonstock, nonprofit, government research institution engaged in long-term, policy-oriented research. It was established on September 26, 1977 by virtue of Presidential Decree No. 1201. Through the Institute's activities, it is hoped that policy-oriented research on Philippine social and economic development can be expanded in such a manner as to more directly and systematically assist the government in planning and policymaking.

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Printed in the Philippines
by Kolortech, Co.

RP-2-89-500
ISBN 971-128-015-9

Foreword

This third volume of the *Survey of Philippine Development Research* compiles the papers presented during the seminar-workshop on "A Program of Research on Health and Development" held on December 17-18, 1986, sponsored by the Philippine Institute for Development Studies (PIDS) and the University of the Philippines' School of Economics (UPSE).

These state-of-the-art review papers on health were put together to identify research gaps and issues on health policies to assist PIDS in formulating a research agenda on health.

It is therefore hoped that these papers will contribute to the efforts of identifying future directions for health policies in the country.

FILOLOGO PANTE, JR.
President
Philippine Institute for Development Studies

February 1989

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Health and Development: A Review of the Determinants And Consequences of Health Improvements in the Philippines

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I. INTRODUCTION

In the broadest sense, health is defined as a state of complete physical, mental and social well-being (WHO, 1978). People place great value on health and governments recognize health as a basic human right. The Philippine Development Plan 1987-1992 noted that "The years following 1975 witnessed a slackening in the advance towards improved health and nutritional status and attaining small-sized families." How does one try to accelerate such an advance in the face of severe resource constraints at both national and household levels? To properly answer such a question, one must have a clear understanding of what determines various health outcomes as basis for making choices regarding the most appropriate forms of public interventions given scarce resources, and regarding which health-promoting activities can best be left to individuals and households. Implicit in the above question is a common understanding of the consequences of changes in health status. How much do we know about such consequences? Are they serious enough to justify the reallocation of the already

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limited resources toward health-promoting activities, at the expense of other activities?

This paper attempts to review available information that addresses the above questions. It is hoped that this review will help clarify what we know and illuminate areas about which we would like to know more. This paper is organized as follows: Section II provides a quick overview of the health situation in the Philippines. Section III presents a simple framework for analyzing the determinants and consequences of health status change and describes various hypotheses regarding health and development interactions. Section IV reviews the empirical evidence for the Philippines. The final section summarizes the findings and suggests research directions.

II. HEALTH PROBLEMS: AN OVERVIEW

Although several indicators have been used or proposed to measure the various dimensions of health (*Paqueo 1976; Andrews 1981; Sintonen 1981*), it is still common to describe the health status of the population in terms of traditional indicators such as mortality and morbidity rates. In terms of mortality, the life expectancy at birth and infant and child mortality rates are the commonly used measures. Morbidity rates by leading cause of illness have also been utilized to provide a rough indication of changing health situation.

Sources and Adequacy of Data

Getting an accurate description of the health status of the population is hampered by inadequate and often defective information on even such traditional measures as mortality and morbidity rates. Common sources of data such as the vital registration systems for deaths, and the death and disease reporting system of the then Ministry of Health invariably produce data that tend to be underestimates of the true mortality and morbidity rates. Moreover, because of differential coverages of reporting of specific causes of deaths or of illnesses, the data also tend to present a distorted pattern of the relative importance of various diseases and causes of death.

As an alternative, direct mortality and morbidity information can be obtained from surveys. But such information are too expensive to get (e.g. the sample sizes required to obtain stable estimates are quite large), and may also be defective (i.e. understated because of failure to report all deaths in the case of mortality, and recall problems and inaccurate reports of causes of illnesses in the case of morbidity).

Indirect estimates of mortality rates from census and vital registration data provide another source of information of the health status of the population. In the Philippines, these estimates are available only at few

discrete time periods and are often not current enough to be readily useful to detect more recent changes and trends.

In spite of such data shortcomings however, it is still possible to get a broad description of the more salient health problems from available mortality and morbidity information.

Mortality

LEVELS, TRENDS AND DIFFERENTIALS. Table 1 presents selected estimates of the crude death rate, life expectancy at birth, infant mortality probability, and the life table child survival rates together with their respective average annual linear changes over selected periods. As the data show, the progress towards mortality reduction in the Philippines have been quite uneven. Mortality decline was very rapid during the 1950s, slowed down considerably in the 1960s, but picked up again in the 1970s. Progress towards raising life expectancy at birth, however, appears to have slowed down in the second half of the 1970s compared to the first half, as are the child survival rates. The downward trend in infant mortality rate in the first half of the 1970s appears to be sustained in the second half. By 1980, the life expectancy at birth reached 62 years, the infant mortality rate declined to 58 per 1000 births, and the child survival rate from birth to age 5 years rose to 907 per 1000 births. Data for the 1980s, however, are hard to obtain. There is speculation that progress towards mortality reduction would be slower in the 1980s compared to the 1970s because of factors related to the decline in economic performance in 1980s *(Herrin and Paqueo 1985)*.

If mortality data at the national level are hard to obtain, data on mortality differentials are even harder to get. The very little data available, however, do show large mortality differentials by region *(Flieger, et al. 1981)*. In 1970, while the national average life expectancy was 56 years, this varied from a high of 60 years in Southern Luzon (including Metro Manila) to a low of 48 years in Western Mindanao. This difference of 12 years is more than the difference in the national life expectancy observed between 1948-50 and 1960, the period with the most rapid mortality decline in the postwar period. The infant mortality rate (q_0) also varied from 75 in Southern Luzon (including Metro Manila) to 135 in Northern Mindanao; the difference is comparable to the decline in the national rate from the early 1950s to 1975.

Indirect estimates of infant mortality rates from the 1978 Republic of the Philippines Fertility Survey (RPFS) also show large variation by social groups defined by the characteristics of the mother *(Esclamad, de Guzman and Engracia 1984)*. The infant mortality rate (q_0) per 1000 births varied from 52 among mothers with college education to 118 among mothers with no grade completed; from 69 among mothers who can read to 130 among mothers who cannot read; from a range of 48 to 72 among Christian mothers

Table 1: SELECTED ESTIMATES OF MORTALITY, PHILIPPINES, 1948-1980

Year	Crude Death Rate		Life Expectancy at Birth (e_o^o)		Infant Mortality Probability (x^qo)		Child Survival Rates at Exact Ages			
							Age 5 ($\frac{1_5}{1_0}$)		Age 10 ($\frac{1_{10}}{1_0}$)	
	Level (x1000)	Average Annual Change (x1000)	Level (Years)	Average Annual Change (Year)	Level (x1000)	Average Annual Change (x1000)	Level (x1000)	Average Annual Change (x1000)	Level (x1000)	Average Annual Change (x1000)
1948-50	21.6	–	42.5	–	166.5	–	751	–	700	–
1960	12.8	0.80	52.8	0.93	113.3	4.8	834	7.5	821	11.0
1970	10.8	0.20	55.8	0.30	93.2	2.0	866	3.2	853	3.2
1975	8.7	0.42	59.4	0.72	76.6	3.3	888	4.4	877	4.8
1980	8.8	0.02	61.8	0.48	58.3	3.7	907	3.8	898	4.2

SOURCES: *For 1948-50, estimates of crude death rate and life expectancy at birth are taken from Madigan (1965), while estimates of infant mortality probability and child survival rates are obtained by interpolation from Model Life Table, West, Levels 9 and 11. For 1960, 1970 and 1975, mortality estimates are from Flieger, et al. (1981). For 1980, mortality estimates are from Concepcion and Cabigon (1984).*

to 174 among Muslim mothers; and from 46 among blue collar working mothers to 74 among farm-related working mothers. Such social group differences, except for the last category, are much wider than the entire difference in the national infant mortality rate from 1960 to 1980.

CAUSE OF DEATH. Table 2 shows the major causes of death. These include respiratory diseases, gastro-intestinal diseases, cardiovascular and neoplasms, and various diseases related to infancy and early childhood, including nutritional deficiency. In 1980, the ten leading causes of death constituted roughly 42 percent of all deaths. Moreover, of the ten leading causes of death in 1980, close to half (49 percent) was attributed to respiratory and gastro-intestinal diseases.

Table 2: DEATH RATES BY LEADING CAUSES, PHILIPPINES, SELECTED YEARS

	Death Rate Per 100,000 Population				
Causes	*1950*	*1960*	*1970*	*1980*	*1984*
Pneumonia	136.7	100.4	118.2	93.6	89.3
Influenza	26.1	–	–	–	–
Bronchitis	100.6	57.2	27.9	–	–
Respiratory tuberculosis	135.5	92.1	77.0	59.6	52.9
Gastro-enteritis	57.7	60.5	35.0	–	–
Dysentery	7.0	–	–	–	–
Diarrhea	–	–	–	27.9	27.8
Heart disease	18.7	27.6	34.0	60.8	61.0
Disease of vascular system	–	20.6	35.8	43.8	39.6
Malignant neoplasm	8.6	18.2	25.6	33.2	30.2
Ill-defined disease of early infancy	–	32.5	19.1	–	–
Nutritional deficiency	113.6	54.4	25.5	15.3	13.4
Measles	38.3	–	–	10.7	9.8
Nephritis, neophrotic syndrome, nephrosis	–	–	–	9.3	8.5
Accidents	–	14.6	24.8	18.7	16.8

SOURCES: *Philippine Health Statistics series 1926-1972 (Manila: Disease Intelligence Center, Department of Health); Philippine Vital Statistics Report series 1972-1977 (Manila: NCSO/NEDA); Philippine Health Statistics 1981-1984 (Health Intelligence Service, Ministry of Health) as reported in Zablan (1986).*

The age pattern of mortality in 1983 from the ten leading causes is shown in Table 3. Pneumonia, diarrhea, measles and nutritional deficiencies are seen to be the major causes of death of infants and young children. (See also Table 4 for the ten leading causes of infant deaths.) Tuberculosis progressively gains in importance as a major cause of death from age 15 to later adulthood. In contrast, cardiovascular and neoplasms are the major causes of death of adults towards the end of their economically productive life.

Morbidity

Table 5 shows the ten leading causes of morbidity from 1978 to 1984. In 1984, respiratory diseases accounted for 61 percent of all morbidity cases among the ten leading causes, while diarrhea accounted for another 24 percent. Of great interest is the increase in morbidity rates since 1980. Could this be related to the increasing economic stress associated with the declining performance of the economy which eventually culminated in the economic crisis of 1983 and 1984?

Regional morbidity rates by leading causes shown in Table 6 reveal wide variations. Region 12 (Central Mindanao) exhibits the highest morbidity rates while the National Capital Region (Metro Manila) exhibits the lowest rates. Other diseases are area-specific. The incidence of malaria is highest in Cagayan Valley and Western Mindanao, while schistosomiasis is one of the ten leading causes in Eastern Visayas.

Nutrition

The major diseases (respiratory, gastro-intestinal and other infectious diseases (i.e. measles) which affect infants and children are often associated with malnutrition. Malnutrition in itself is also shown as one of the leading causes of death. Thus, in addition to mortality and morbidity rates, it would be useful to examine available data on the nutritional status of the population.

The nutritional status of the population is generally described in terms of (a) energy and protein insufficiency; (b) growth failure, especially among pre-school children; and (c) micro nutrient deficiencies. Surveys conducted by the Food and Nutrition Research Institute (FNRI) reveal the following levels of adequacy: for energy, 88.6 and 89.0 percent in 1978 and 1982, respectively; while for protein, 93.2 and 99.6 percent in 1978 and 1982, respectively (FNRI, 1981; 1984). Behind these national aggregates are variations by region, rural and urban location, household income, and occupation of household heads. Inadequacies in micronutrient intakes have also been revealed in the FNRI data. For example, in 1982 the percent

Table 3: TEN LEADING CAUSES OF MORTALITY RATE BY AGE GROUP, 1983

Age Group	Pneumonias	Diseases of the Heart	Tuberculosis, All Forms	Diseases of the Vascular Systems	Malignant Neoplasms	Diarrheas	Measles	Avitaminoses and Other Nutritional Deficiencies	Accidents	Nephritis, Nephrotic Syndrome and Nephrosis
Under 1 yr.	950.3	24.9	3.1	7.7	10.7	373.2	137.1	157.2	10.0	5.1
1 – 4 yrs.	279.3	6.7	2.8	2.2	4.5	83.4	96.3	34.2	8.1	4.0
5 – 9 yrs.	38.5	4.1	1.1	1.9	3.2	16.4	12.0	4.2	6.8	1.8
10 – 14 yrs.	13.2	6.8	0.8	2.8	4.7	5.5	1.8	1.3	6.3	1.5
15 – 19 yrs.	8.7	10.9	17.9	4.1	4.0	2.4	0.3	0.7	8.1	2.0
20 – 24 yrs.	9.9	16.5	17.8	8.4	6.3	2.7	0.2	0.9	11.5	3.0
25 – 29 yrs.	11.7	21.6	28.6	11.4	9.6	2.3	0.09	1.1	12.1	4.1
30 - 34 yrs.	13.1	28.9	40.8	18.5	17.0	2.8	0.1	1.5	12.8	4.5
35 – 39 yrs.	14.3	38.3	59.2	28.7	29.0	3.3	0.04	1.8	12.6	6.7
40 – 44 yrs.	20.7	60.0	90.2	46.9	50.7	4.0	0.2	2.6	14.4	8.8
45 – 49 yrs.	26.6	82.0	123.2	73.1	75.3	7.3	–	3.2	14.6	12.6
50 – 54 yrs.	38.2	120.2	174.2	122.5	114.6	10.7	–	4.6	17.0	17.6
55 – 59 yrs.	57.9	169.6	219.2	174.4	148.7	13.7	–	8.7	15.8	27.0
60 – 64 yrs.	102.9	292.9	330.9	280.1	198.6	22.7	0.3	13.9	20.6	40.2
65 – 70 yrs.	132.2	427.7	394.9	423.5	245.8	28.0	0.4	21.6	23.4	64.3
70 yrs. and above	530.1	1279.9	272.8	1097.3	354.2	73.6	3.1	108.2	42.7	150.4

SOURCE: *Philippine Health Statistics, 1983, Health Intelligence Service, Ministry of Health, as reported by Cariño (1986).*

Table 4: INFANT MORTALITY: TEN LEADING CAUSES, RATE (PER 1,000 LIVE BIRTHS) PHILIPPINES, 1980-1984 AND FIVE-YEAR AVERAGE, 1975-1979

Causes	*1975-1979 Average*	*1980*	*1981*	*1982*	*1983*	*1984*
Pneumonia	13.4	11.4	10.5	10.2	10.2	11.5
Respiratory Conditions of Foetus and Newborn	2.6	5.5	5.3	6.1	6.2	5.3
Diarrhea	4.9	4.0	4.7	3.4	4.0	3.4
Congenital Anomalies	1.8	2.4	2.0	2.1	1.9	1.7
Avitaminoses & Other Nutritional Deficiencies	5.1	2.1	2.0	1.4	1.7	0.9
Birth Injury and Difficult Labor	0.9	1.5	1.5	1.1	1.5	0.4
Acute Bronchitis and Bronchiolitis	1.5	1.0	1.0	0.7	1.1	–
Measles	1.0	1.0	1.3	1.2	0.7	1.5
Meningitis	0.7	0.6	0.5	0.5	–	–
Dysentery, all forms	0.2	0.3	–	–	0.6	0.04
Septicemia		–	0.5	0.4	–	–
Tetanus		–	–	–	–	0.9

SOURCES: *Philippine Health Statistics, Health Intelligence Service, Ministry of Health, 1980-1984 as reported by Zablan (1986), and NEDA (1985).*

Table 5: TEN LEADING CAUSES OF MORBIDITY, PHILIPPINES, 1978-1984 (Rate Per 100,000 Population)

Causes	YEAR						
	1978	1979	1980	1981	1982	1983	1984
Bronchitis	455.6	471.3	427.3	507.1	552.2	577.8	1039.5
Influenza	488.7	406.0	419.9	445.5	445.5	447.9	783.3
Diarrheas	462.6	466.2	413.0	482.7	435.6	443.6	962.6
Pneumonias	248.8	272.2	242.7	248.6	108.3	237.5	337.6
Tuberculosis, All Forms	260.5	233.6	232.4	235.8	206.2	179.2	268.0
Malaria	77.7	68.2	82.1	89.1	68.9	88.0	207.4
Malignant Neoplasms	43.6	43.4	59.8	50.0	–	49.7	50.6
Dysentery, All Forms	60.7	60.7	56.7	54.4	66.7	–	–
Measles	61.2	62.8	55.4	54.6	67.3	71.7	126.5
Whooping Cough	33.5	–	41.1	38.7	31.3	27.4	–
Infectious Hepatitis	–	19.0	–	–	16.5	17.6	28.3
Accidents	–	–	–	–	–	–	156.8

SOURCE: *Philippine Health Statistics, 1978-1984.*
Health Intelligence Service, Ministry of Health as reported by Zablan (1986).

Table 6: TEN LEADING CAUSES OF MORBIDITY BY REGION, 1983 (Rate Per 100,000 Population)

Causes	Region												
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	NCR
Bronchitis	675.3	957.3	914.3	345.5	294.7	765.8	586.0	437.1	752.0	815.0	708.5	1344.6	693.9
Diarrhea	531.6	867.0	804.4	305.6	296.3	489.4	445.6	537.4	923.9	575.1	370.8	1125.4	309.5
Influenza	418.5	834.0	883.4	247.2	132.2	330.4	213.2	334.8	1167.6	422.2	528.3	1735.7	200.9
Pneumonia	236.7	158.1	327.7	123.4	170.7	204.1	180.0	331.6	283.0	401.8	193.6	698.2	127.1
Tuberculosis All Forms	187.8	148.0	201.2	132.3	309.3	245.0	150.7	328.5	244.2	168.5	164.9	323.9	177.5
Measles	88.3	65.0	96.1	56.4	63.3	56.5	63.0	106.9	108.0	128.4	99.0	116.0	91.5
Dysentery, All Forms	70.2	64.3	30.5	11.8	27.1	84.4	145.2	95.4	207.5	200.8	173.2	332.2	–
Malignant Neoplasms	43.4	27.9	49.7	42.2	26.0	54.2	57.6	28.5	34.2	82.4	45.2	40.5	81.4
Malaria	30.6	681.8	19.1	117.9	8.9	–	–	–	510.0	198.7	165.2	73.5	–
Whooping Cough	29.7	28.9	21.2	25.5	25.7	27.6	10.3	95.8	73.1	45.2	36.3	78.4	–
Infectious Hepatitis	–	–	–	–	–	20.7	9.7	–	–	–	–	–	23.4
Schistosomiasis	–	–	–	–	–	–	–	42.1	–	–	–	–	–
Diptheria	–	–	–	–	–	–	–	–	–	–	–	–	17.1
H-Fever	–	–	–	–	–	–	–	–	–	–	–	–	11.6

SOURCE: *Philippine Health Statistics, Health Intelligence Service, Ministry of Health.*

adequacy of intakes of iron, calcium, thiamine, riboflavin, niacin and ascorbic acid were 91.5, 80.4, 71.8, 56.3, 119.7 and 91.1, respectively.

A salient feature of the nutrition problem is the nutritional status of preschoolers. Survey data from FNRI reveal that undernutrition (less than 85 percent of standard weight-for-height) among pre-schoolers was 13.8 percent in 1978 and 9.5 percent in 1982. Data from the Philippine Nutrition Surveillance System (PNSS) cited by Florentino (*1986*) revealed that undernutrition, similarly measured, was 13.3 percent in 1984 and 14.3 percent in 1985. If the data are indeed comparable with the FNRI data, it appears that there has been an increase in undernutrition rates among preschoolers after 1982, a finding that is not inconsistent with declining incomes, increasing underemployment and rising prices of basic commodities, especially food, during the period.

Summary

Philippine health problems have much in common with the health problems in the developing world. Respiratory, gastro-intestinal and other infectious diseases together with nutritional deficiency constitute major causes of death and of morbidity. Cardio-vascular and neoplasms, however, are also important causes of death and are expected to become even more so. Faced with these disease patterns, the country is now challenged to cope with highly differentiated major categories of diseases in terms of etiology and methods of control, and, will have to do this with severe resource constraints.

Policy choices can be facilitated by information regarding economic, social, biological and environmental determinants of various health outcomes that can serve as basis for assessing alternative health - promoting strategies. On the other hand, there is also a need for empirical information on the economic and social impacts of mortality and health improvements to serve as basis for strengthening commitment to the allocation of resources toward health promotion and disease control.. The subsequent sections of this paper review the state of knowledge on both determinants and consequences of health status change.

III. DETERMINANTS AND CONSEQUENCES OF HEALTH IMPROVEMENTS: CONCEPTUAL FRAMEWORK

Determinants

ALTERNATIVE PERSPECTIVES. In reviewing health-related field studies in developing countries, Mosley (*1984*) notes that these "are carried out by either biomedical or social scientists, each approaching the problems from

their own disciplinary perspective with very little recognition accorded to biosocial interrelationships" (p. 4). Biomedical field studies typically attempt to identify critical risk factors associated with specific diseases that might be modified by specific intervention programs. These studies, however, have little to say about the role of socioeconomic determinants. Social science studies, on the other hand, typically attempt to relate health outcomes with various socioeconomic processes. However, these studies often produce various health outcomes largely unspecified or untested because the mechanisms through which these processes operate are examined on their own. While each approach may contribute to illuminating specific aspects of the determination of health outcomes, a broader perspective is needed to analyze biosocial interactions as a basis for informing public policy. In an attempt to provide such a broader perspective, Mosley and Chen(*1984*) proposed an analytical framework for analyzing the determinants of child survival that incorporates both the social and medical science perspectives. The key to their analytical framework is the identification of a set of proximate determinants, or intermediate variables, that directly influence the risk of morbidity and mortality. Social and economic determinants are seen to affect health outcomes through their impact on these intermediate variables. Schultz (*1984*) adopts a similar conceptual framework, and explicitly considers the econometric specifications needed to obtain valid statistical tests of the interactions between socioeconomic determinants, proximate variables and health outcomes. A simplified but comprehensive framework is described below. This takes account of the above analytical contributions, and at the same time highlights two other aspects, namely: the dynamics of individual/household decision making, and the impact of exogenous changes, principally those resulting from public policies/programs including health-promoting and disease control policies/programs, on health outcomes.

CONCEPTUAL FRAMEWORK. A simple framework for analyzing the determinants of health outcomes and for organizing the review of the literature can be described with the aid of Figure 1. The basic components of this framework are the health outcomes, the proximate determinants, the socioeconomic determinants, and the exogenous shocks. Underlying this framework is a model of individual/household decision making.

As mentioned earlier, health is a multi-dimensional concept. While attempts have been made to measure various aspects of physical, mental and social well-being, most of the research so far undertaken use the traditional indicators of health outcomes, i.e. mortality, morbidity and nutritional status. Attention will be focused on the determinants of mortality, morbidity, and nutritional status, specifically on infants and young children.

As conveniently described by Mosley and Chen(*1984*),based upon a careful review of biomedical literature, the proximate determinants can be

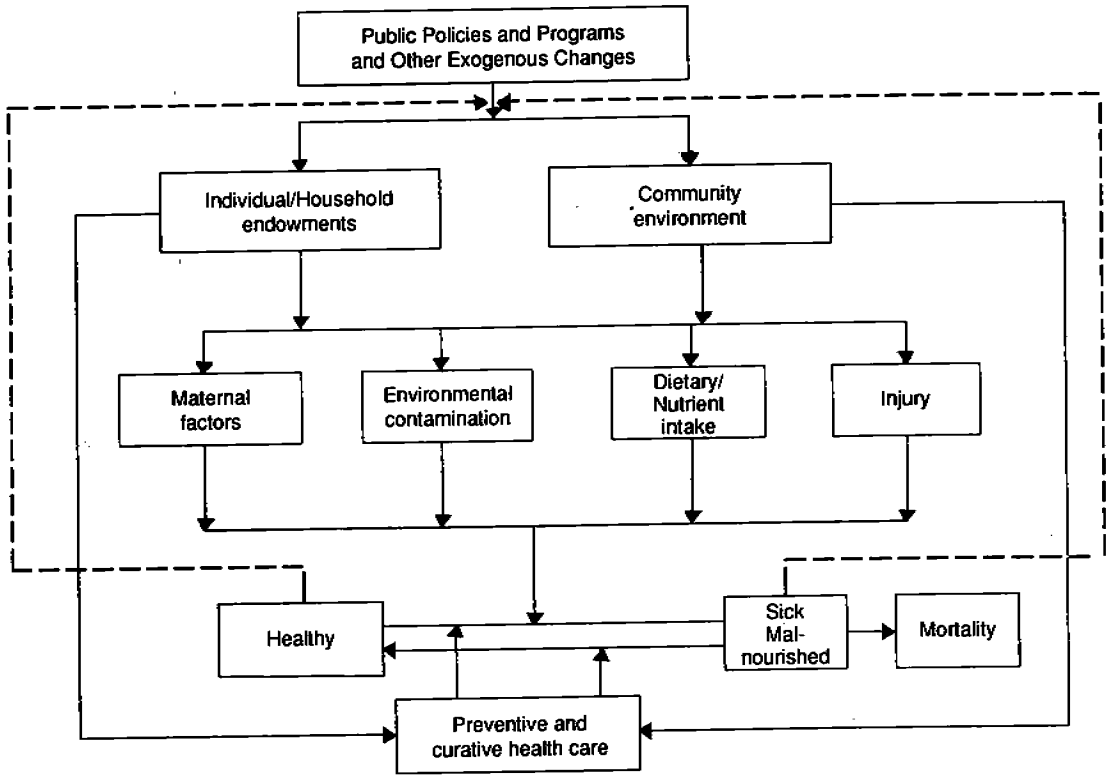

FIGURE 1: CONCEPTUAL FRAMEWORK FOR ANALYZING THE DETERMINANTS OF HEALTH OUTCOMES

grouped into five major categories: (a) reproductive factors: parity, birth interval; (b) environmental risk factors: air, food/water/fingers, skin/soil/ inanimate objects, vectors; (c) nutrient intake: calories, protein, micronutrients; (d) injury: accidental, intentional; and (e) health care: preventive measures, medical treatment. The first four categories of proximate determinants influence the "rate of shift of healthy individuals towards sickness," i.e. morbidity rates, while the last category influences both morbidity rate (through prevention) and the rate of recovery (through treatment). Ultimately, sickness either leads to complete recovery (healthy state) or to growth faltering or other disability among survivors, and/or death.

Socioeconomic determinants can be classified into three major categories: (a) individual endowments: unobserved biological endowments, age, education, preference, beliefs, attitudes; (b) household endowments: income/wealth, age-sex composition and human capital of household members; and (c) community environment. The community environment includes a variety of factors. These are (a) the ecological setting and natural resource endowments: climate and soil; (b) the structure of markets and prices for products and factors of production, including labor; (c) the size and structure of the population; (d) social structure and organization; (e) physical infrastructures, and economic and social services other than health; and (f) health infrastructure and services.

Exogenous changes include changes arising from external shocks and from public policies and programs. Changes arising from external shocks include changes in the prices of export and import commodities that affect the livelihood of a large proportion of the population, the development of new health technology, and, additional health resources from international organizations. A major source of shocks, however, is the set of public policies and programs, notable among which are economic policies and programs affecting prices of products and factors of production, the provision of agricultural and industrial support services, and public expenditure on physical infrastructure such as roads, irrigation, flood control, and electrification as well as social infrastructures and services in the field of education, health, nutrition, environmental sanitation and family planning.

In this framework, the individual/household, in an attempt to improve its welfare, is assumed to make various kinds of decisions subject to a set of opportunities and constraints defined by its individual/household endowments and by the community environment. Exogenous shocks affect the structure of opportunities and constraints facing individual/households either directly by increasing individual/household endowments, or indirectly through the community, either by increasing community resources and services available to individuals/ households or by modifying the structure of economic incentives, i.e. prices and wage rates. The individuals/households are then expected to respond to these changes in a manner perceived to improve, or at least prevent a deterioration of, their present economic and

social welfare including their health status. Depending upon the nature of emerging structure of opportunities and constraints, a "multiphasic response" is expected from these individuals/households in terms of decisions regarding savings/consumption, investment in physical and human capital, time allocation and labor force participation, fertility, migration, disease avoidance and medical treatment. These decisions in turn affect the proximate determinants and ultimately the health outcomes together with other socioeconomic outcomes, e.g. incomes, employment, education of children, etc.

HYPOTHESES: PROXIMATE DETERMINANTS. In developing countries where infant and child mortality are still high, it is interesting to see the major proximate determinants of such a situation. The review of the proximate determinants of child survival undertaken by Chen (1933) and selected studies found in Mosley and Chen (*1984b*) are particularly useful.

Child survival up to age 5 is generally influenced by the five proximate determinants shown in Figure 1. When viewed from the stand-point of mothers and children and viewed interactively, the five proximate determinants can be reclassified in terms of the following factors. The first is maternal factors, including age, parity, the interval between births, and maternal nutritional status. These factors affect the mother's biological resources for providing adequate nutrition to the fetus during pregnancy and to the infant during breastfeeding. The second is nutritional factors which include diet and feeding variables. The mother's diet during pregnancy and lactation influences the nutrition of the fetus and the child, respectively. Since breastmilk alone cannot provide complete nutrition beyond 4-6 months, continuation of breast-feeding and the timeliness, adequacy, and pattern of supplementation become important until the child is able to consume a regular diet. The third factor is infections which may affect the child both during pregnancy and early childhood. Maternal infection during pregnancy is believed to contribute to low-birth weight and high neonatal mortality risk. During the first five years of life, the child inevitably will experience many infections, mainly respiratory and gastrointestinal in nature, resulting from exposure to varying degrees of environmental contamination. These infections are the major causes of infant and child mortality, and have been known to interact with malnutrition. The last factor is child care, which includes the availability of child health services and child care behavior in response to illness.

In reviewing the evidence regarding the role of these proximate determinants, the following relationships appear to be important and reasonably generalizable (*Chen 1983*).

(1) **Maternal factors:** Childbearing at very young (under 17) and very old (over 35) ages enhances mortality risks. Parity affects childhood mortality: the risk associated with the first birth is high,

declining during the second and third births, and usually monotonically rising thereafter. High parity implies more births at older ages and at closer birth intervals, the latter can adversely affect the index child by prematurely interrupting breastfeeding, reducing food supplementation and compromising child care time. Close birth intervals could also compromise maternal nutritional status during pregnancy.

(2) **Nutritional factors:** Maternal diet and nutritional status during pregnancy affect fetal growth and birth weight; maternal food supplementation during pregnancy reduce the proportion of low-birth-weight infants and neo-natal mortality. Breastfeeding is the optimal form of infant feeding: during the first 4-6 months it provides the following unique advantages: nutrient adequacy, sterility, immunization against infections, antiallergenic properties, psychological bonding, and low cost. Fully breastfed infants tend to have lower mortality rates than bottle-fed infants. Part of this relationship is due to the interaction between artificial feeding and either environmental contamination or nutritional intake: artificial formulae are often mixed with contaminated water in contaminated bottles, introducing orally transmitted infections; moreover the formulae may be diluted because of prohibitive cost, thereby reducing the childs' net nutrient intake.

(3) **Infection and environmental contamination:** Maternal infection (e.g. mycoplasma infections of the genital-urinary tract among pregnant women) is one cause of low birth weight and high infant mortality. After birth, a child cannot avoid infections, the most significant of which involve the gastrointestinal and respiratory tracts. The infection rate and its severity culminating in death is influenced by exposure to communicable pathogen, the susceptibility of the host (partly determined by nutritional status), and health behavior in response to illness.

(4) **Child care factors:** Many deaths due to infectious diseases and malnutrition may be either prevented (e.g. immunization, sanitation, adequate feeding) or treated successfully with curative services (e.g. oral rehydration therapy, anti-biotics and nutritional rehabilitation). Child care practices thus assume importance in determining mortality risk either in influencing exposure to infections and malnutrition or in influencing utilization of health care services.

(5) **Injury:** This includes birth injury, physical injury, burns and poisoning. Birth injuries can be prevented by correct delivery procedures and adequate handling of complicated cases. Accidental injuries are influenced by environmental risks. these events, however, are difficult to determine.

(6) **Interaction between proximate determinants:** The interaction between the proximate determinants is extremely complex, and as Chen (1983) observes: "is still inadequately documented, poorly understood, and probably variable cross-culturally" (p. 176).

HYPOTHESES: SOCIOECONOMIC DETERMINANTS. The relationships between socioeconomic factors and health outcomes can be examined in terms of the former's influence on the proximate determinants or in terms of the former's *net* effect on health outcomes.

The major factors often hypothesized to influence both proximate determinants and health outcomes are (a) individual/household endowments (wage rates, education, household wealth/assets or income) and (b) community environment (measures of health infrastructures and services, prices of basic commodities including health services, and indicators of the physical environment). The specific hypotheses linking socioeconomic factors and proximate determinants may be described as follows:

(1) **Wage rate of household head and household wealth/assets** - an increase in wage rate and household non-labor income increases the demand for children, for nutritious food, sanitary facilities (water, toilets, housing), and preventive and curative health services.
(2) **Wage rate of the wife** - an increase in wage rate reduces the demand for children and the time allocated to child care and other time-intensive health-related home activities.
(3) **Mother's education** - higher education increases productivity or efficiency in the production of health inputs, i.e. nutritious food, child care, use of health care services, and is related to preferences for small family size.
(4) **Prices of health services** - higher monetary and time costs of health care services reduce demand for such services.
(5) **Prices of other commodities** - higher prices of food and sanitation facilities reduce demand for such goods.
(6) **Environment** - adverse physical characteristics increases exposure to the risk of infection and infestation, and affect time cost of health care services.

The hypothesis concerning the net effect of socioeconomic factors on health outcomes may be described as follows:

(1) **Wage rate of household head and household wealth/assets** - an increase in wage rate and non-labor income increases infant/child survival rates.
(2) **Wage rate of wife** - the effect of an increase in wage rate on

infant/child survival rate is ambiguous. It could increase survival rate through its effect on income, or it could reduce survival rate through its effect on child care. Taking into account intrahousehold substitution, the net effect would tend to be positive.

(3) **Mother's education** - the higher the education of the mother, the higher the survival rate of children.

(4) **Prices of commodities including health services** - the higher prices, the lower the survival rate of infant/children.

(5) **Environment** - adverse environmental conditions increases infant/child mortality.

The above hypotheses apply as well to morbidity rates and nutritional status of children.

Consequences

Shown in Figure 1 as broken lines, health outcomes affect individual, household and community welfare. But what are the mechanisms involved by which different health outcomes affect welfare? Andreano and Helminiak (*1986*) recently suggested a typology of disease impacts. Although the study focused on tropical diseases, the typology is readily generalizable for other diseases and other health outcomes. The social and economic impact of disease and other health outcomes may be categorized as follows:

HEALTH CONSUMPTION EFFECTS - the most apparent effects of disease are those that diminish the enjoyment (or consumption) of good health among affected persons. This category includes the direct pain and suffering associated with disease/infection, the shortened enjoyment of life resulting from premature mortality, the grief of persons affected by either physical incapacity or the stigma of disease, grief related to impending early mortality, and grief of relatives and friends of those affected by a disease.

SOCIAL INTERACTION AND LEISURE EFFECTS - includes stresses and constraints imposed on interactions between infected persons and other members of their households and communities; leisure time and recreation may also be reduced.

SHORT-TERM PRODUCTION EFFECTS - these include both market and non-market impacts. Among the former are effects on labor as a factor of production which include any of the following: (a) the temporary loss of labor days due to inability to work; (b) the permanent loss of labor supply days due to mortality; and (c) reductions in the efficiency of labor days supplied due to debility. On the other hand, non-market production effects are those affecting production of commodities for home consumption and household services such as child care, production of nutritious meals, etc.

LONG - TERM PRODUCTION/CONSUMPTION EFFECTS - these include (a) demographic effects (reduced mortality and population growth) on consumption, labor supply and capital formation; (b) effects on land and labor supply, for example, diseases which have especially high transmission potential in certain land areas may reduce the supply of productive land, because the settlement and employment of land is discouraged; and (c) effects of better health and nutrition on intellectual development, motivation, better academic performance, innovative behavior and attitude towards risk.

IV. DETERMINANTS AND CONSEQUENCES OF HEALTH IMPROVEMENTS: EVIDENCE

Proximate Determinants

Studies on the role of proximate determinants on specific health outcomes based on national or large samples are hard to come by. The available studies include multivariate analysis of the determinants of child mortality (*Martin et al. 1983*), morbidity among household members (*Layo 1977*), and nutritional status of pre-schoolers (*Battad 1978; Popkin 1980*), and bivariate analysis of the relationship between breastfeeding and maternal and child health care factors, and child survival (*Zablan 1986*). In addition to the above studies, we examined data from the Ministry of Health, National Health Surveys of 1978 and 1981 as well as data from other sources concerning such factors as maternal health care, breastfeeding, health services availability, and environmental contamination variables (*Herrin 1985*).

MULTIVARIATE ANALYSIS. Using data from the 1978 Republic of the Philippines Survey (RPFS), Martin, et al.(*1983*) assessed the socio-economic and proximate co-variates of child mortality. The proximate determinants of interest are the mother's age at birth of the child, the birth order, and two environmental contamination variables. The results reveal that child mortality risk (conditional probability of dying at a given age, given that one has survived to that age) is significantly higher among children born among mothers age less than 20 years than among mothers age 20-34 or 35 and over. Between births among mothers in the ages 20-34 years and 35 years and over, however, the mortality risk is only slightly higher in the latter than in the former although a much higher mortality risk is expected among children born of older mothers. The results also show that child mortality risk is lower with the first birth, higher with the second and third births, and highest with the fourth and higher order births, although a much higher child mortality risk is expected with the first birth than with the second and third

births. Thus the findings of Martin, et al. (*1983*) partially support the commonly expected relationships between child mortality and age and birth order, respectively.

Martin, et al. (*1983*) also found that the quality of sanitary facilities (toilet facility inside the house vs. outside the house or none) is negatively related to child mortality risk. The type of water supply (pipe/artesian well/ other), however, is not significantly related to child mortality risk. These results for environmental contamination variables must be interpreted carefully, however, as the authors caution. Both variables are measured at the time of the survey and not at the time the births occurred.

Layo (*1977*) using household survey data from a randomly selected national sample of 3,000 households collected under the Population, Resources, Environment and the Philippine Future (PREPF) project, examined the relationships between the number of reported illness in the household during the 30 days prior to interview date to a number of socioeconomic and proximate variables. The proximate variables of interest are the quality of drainage, ventilation and water supply. The results show that quality of water and quality of ventilation are important factors in total illness. These factors, together with quality of drainage are also found to be significant factors in chronic illnesses. The results are generally consistent with expectations.

In examining the determinants of child nutritional status measured by the child's percentage of standard weight in a Laguna sample of 578 preschoolers, Battad (*1978*) tested the effect of proximate determinants along with several socio-economic factors. The proximate determinants are the nutritional status of the mother (mother's percentage of weight for height), and the number of children age 0-6 years. The results of the multivariate analysis show that mothers' nutritional status had a positive effect on child nutritional status among children aged 6-23 months, but no significant effect among older children. Moreover the number of children age 0-6 years had a strong negative effect among children aged 24 months and over, but the strongest effect was among children age 24-47 months. The effect on children less than 2 years of age was not significant.

In interpreting the results, Battad notes that the significant effect of mothers' nutritional status on the nutritional status of younger children but not on older children reflects the effect of mothers' nutritional status on the fetus and the children's birthweight, as well as subsequent breastfeeding effects. On the other, the stronger negative effect of the number of preschool children on the nutritional status of children 2-4 years old as against the 4-6 years old means that the latter group "are better able to cope with shifts in their mother's attention." Moreover, the insignificant effect of children age 0-6 years on the nutritional status of children 6-23 months is interpreted to mean that "Laguna mothers concentrate more attention on the younger preschoolers than older ones."

In another study, Popkin *(1980)* examined the proximate determinants of the nutritional status (weight-for-age and height-for-age measures) of preschool children in Laguna. Nutritional status is modelled to be a function of child care time, dietary intake, mother's nutritional status and quality of water supply. A problem with the study is the limited sample (n = 68) available for analysis after taking into account the various data requirements to estimate the model. The results show that very few of the coefficients are statistically significant and the amount of variation explained by the regression is low. In spite of this, it is interesting to note that among the significant coefficients, the relationships seem to be an increase in per capita child care time mothers with increases in the child's nutritional status, whereas increases in per capita child care time of older siblings reduces the child's nutritional status. This suggests that a substitution of "higher quality" mother's child care time for "lower quality" older sibling's child could have unfavorable effects on child's nutritional status.

BIVARIATE ANALYSIS. Another proximate factor that affects child health and survival is whether or not the child is breastfed during infancy. Recent work relating breastfeeding and infant survival has been done by Zablan (*1985, as reported in Zablan 1986*). Based on data from the 1983 National Demographic Survey (NDS)), Zablan found that the proportion of infants who survived up to the first year was higher among breastfed than among non-breastfed infants: 0.864 vs. 0.583. For all children born between January 1978 and the 1983 NDS, higher infant and child survival rates are also found among breastfed than non-breastfed children after controlling separately for source of water supply and presence of sanitary toilet facilities. For the last child born between January 1978 and the 1983 NDS, higher child survival rates are found among breastfed than non-breastfed children after controlling for prenatal care, place of delivery and delivery attendant. Several important interactions can also be noted from the data. These are: (a) highest child survival rate is found among breastfed children and where water supply source is piped water, while lowest survival rate is found among non-breastfed children and where water supply source is surface water: 0.960 vs. 0.793; (b) highest child survival rate is found among breastfed children and where household has sanitary toilet than among non-breastfed children and where household has no sanitary toilet: 0.961 vs. 0.783; (c) for the last child, highest child survival rate is found among breastfed children who were immunized than children who were neither breastfed nor immunized: 0.985 vs. 0.843; and (d) for the last child, highest survival rate is observed among breastfed children and where the mother had prenatal care and lowest when neither was the case: 0.978 vs. 0.873.

Taking advantage of Zablan's basic tabulations, one can examine the bivariate relationships between child survival of the last child born during 1978-1983 and several maternal and child health practices. Analysis

suggests that child survival rates tend to be higher among children whose mothers had some prenatal care, who were delivered in hospital/clinic, whose birth was attended by a doctor or trained midwife, and who had received immunization within the first 6 months of life, than among children who had neither of these characteristics.

The above results together with those on breastfeeding provide the most recent national evidence on the role of proximate determinants and their interaction in affecting child survival. The bivariate nature of the analysis, however, preclude assessment of the partial effect of a particular proximate determinant on child survival holding other variables constant. Further analysis of the data using multivariate techniques is clearly called for.

INFERENCES FROM BASIC INFORMATION. How much progress can be achieved in improving child health and survival may be inferred from available national information on specific proximate determinants. Some of these information is examined here (*Herrin 1985*).

Prenatal care is associated with higher child survival rates as was noted earlier. This relationship is expected to operate through proper advice on maternal nutrient supplementation and diet during pregnancy, timely medical intervention for possible maternal infection, and proper advice on child feeding, all of which could affect birth-weights and child nutritional status. Thus one factor that could significantly affect child health and survival in the Philippines may be the quality and timeliness of prenatal care that pregnant women obtain. Data from the MOH, National Health Survey in 1978 shown in Table 7 reveal that 65 percent of pregnant women obtain prenatal care or advice from non-professional health practitioners, i.e. hilots, herbolarios and others. The quality of prenatal care obtained from these practitioners may be expected to be lower than that which could be obtained from professionals. Regarding the timeliness of prenatal care, the same data show that 39 percent of women went for prenatal care/advice during the first or second trimester, while 61 percent sought or obtained prenatal care/advice only during the third trimester, and of the latter, 85 percent sought non-professional health practitioners.

In 1980, 3.3 percent of total reported infant deaths were due to birth injuries and difficult labor. A large part of these deaths could probably have been avoided by proper delivery procedures and adequate emergency care. Data shown from MOH in Table 8 reveal that half (53 percent) of total births for the period 1979-1981 were delivered by non-professional health attendants, i.e. hilots, herbolarios, relatives and others. The popularity of hilots was attributed by respondents mainly in terms of the former's accessibility. Fifty percent of respondents mentioned "nearest the house" as the main reason for seeking hilots, while another 11 percent mentioned "trust and confidence." Thus it appears that the popularity of hilots is partly due to the

Table 7: PERCENTAGE DISTRIBUTION OF RESPONDENTS CONSULTING HEALTH WORKERS FOR ANTE-NATAL CARE BY FIRST REFERENCE, 1978*

		Trimester of Pregnancy		
Health Worker	*Percent*	*First*	*Second*	*Third*
Physician	14.7	42.9	26.9	3.0
Nurse	1.6	2.9	3.3	0.6
Midwife	18.8	30.0	43.7	6.2
Hilot	11.9	20.1	24.1	5.1
Herbolario, Mother/ Mother-in-law, etc.	53.0	4.0	2.0	85.1
Total Percent	100.0	100.0	100.0	100.0
Total Respondents	6,924,497	1,043,733	1,657,365	4,223,399

* *Data refer to last pregnancy.*

SOURCE: *Ministry of Health, National Health Survey, 1978. (Table 20).*

Table 8: DISTRIBUTION OF ATTENDANCE AT BIRTH BY CATEGORY OF ATTENDANT, 1978 AND 1981

Birth Attendant	*1978[a]*	*1981[b]*
Physician	9.0	17.6
Nurse	0.8	2.2
Midwife	11.9	27.0
Hilot	26.3	45.5
Relative and Others	52.0	7.7
Total Number of Births	6,924,492	3,860.638

[a] *Data refer to birth of last child.*

[b] *Data refer to birth during past three years 1979-1981.*

SOURCE: *Ministry of Health, National Health Survey, 1978 and National Health Survey, 1981.*

difficult access of a large number of pregnant women to professional delivery attendants.

Another proximate factor that affects infant/child health and survival is whether or not the child was breastfed during infancy. Table 9 presents survey data on breastfeeding prevalence and duration in the Philippines based on national demographic surveys. The data reveal that 85 percent of children born three years prior to the 1978 RPFS were breastfed. Comparable data for Thailand, Republic of Korea, and Indonesia show that breastfeeding prevalence rates in these countries is 90 percent or above. Of 10 countries where comparable data were available at around 1978, the

Table 9: TRENDS IN BREASTFEEDING PREVALENCE AND DURATION, PHILIPPINES, 1973-1983

Year	Source and Nature of Data	Percent Breastfed	Duration		n
			Mean (mos.)[c]	Trimean (mos.)[d]	
1973	NDS (last child)[a]	86.8	–	12.3	7,190
1978	RPFS (All children born three years before survey date, 1978[b]	84.6	12.6	11.4	7,780 (9,531)[e]
1983	NDS (All children born between 01/78 and 12/82	83.1	10.4	9.6	11,846 (9,531)[e]
	NDS (All children born between 01/78 and 07/83	83.2	11.2	9.6	12,865 (10,677)[e]

[a] *National Demographic Survey.*

[b] *Republic of the Philippines Fertility Survey.*

[c] *Arithmetic mean based on reported duration.*

[d] *Locational average computed as: Trimean* $= \frac{(T_{25} + 2T_{50} + T_{75})}{4}$

[e] *Sample sizes for data on duration.*

SOURCE: Zablan (1985), Tables 1 and 2.

Philippines ranked second lowest in both breastfeeding practice and breastfeeding duration *(Zablan, 1985).*

The data in Table 10 also suggest that in 1978 and 1983, higher breastfeeding prevalence rates tend to be associated with younger mothers, rural residence and lower mother's education. Longer duration is also associated with rural residence and lower educational status of mothers. However, younger mothers tend to breastfed their infants at shorter duration than older women. Comparing the data between 1978 and 1983, there appears to be a slight decline in overall breastfeeding practice and in the mean duration of breastfeeding. The overall decline in breastfeeding prevalence rates is reflected in declines in all age categories, among rural women, among other areas outside Metro Manila, and among women of lower educational status. Breastfeeding prevalence rates, however, appear to increase among urban women, especially in Metro Manila and among women with high school or higher education. With respect to duration, this appears to decline across various categories of women except among women in urban areas, in Metro Manila, and with higher education (high school or more). In sum, there appears to be a declining trend in breastfeeding practice and duration of breastfeeding among sub-groups of the population where breastfeeding is most likely to have an important effect on infant/child survival. Moreover, efforts to encourage breastfeeding appears to be more effective among urban and highly educated women.

Child health and survival are also associated with the availability and use of health services. Data on these (measured in terms of distance to nearest health facilities) from the MOH, National Health Survey for 1978 and 1981 do not inspire much confidence as to their reliability. The 1981 survey data for example, show large proportions of households under the categories "unaware/not concerned" or "not stated", for each type of health facility, which are not reflected in the 1978 survey. The data, shown in Table 11 however, suggest that a large proportion of households do not have easy physical access to specific health facilities. This can easily act as a constraint to the use of such facilities.

Finally, child health and survival are associated with environmental contamination variables. Data from the census reveal that 76 percent of total households in 1980 have access to safe water supply, an improvement from 61 percent in 1970 and 49 percent in 1960. However, only 49 percent of households have sanitary toilets in 1980. Nonetheless, this is an improvement from 23 percent in 1970 and 8 percent in 1960.

While it is easy to say that further progress can be achieved in reducing infant/child mortality and morbidity by improving the levels of the various proximate determinants, it is not clear which of these factors should be given priority given scarce resources. Policy choices need to be guided, on the one hand, by knowledge regarding the relative effect of each of these variables on overall health and mortality, and on the other hand, by the knowledge

Table 10: TRENDS IN BREASTFEEDING PREVALENCE AND DURATION BY SELECTED CHARACTERISTICS, PHILIPPINES, 1978 AND 1983 (FOR CHILDREN BORN 2 YEARS BEFORE THE 1978 RPFS, AND FOR CHILDREN BORN BETWEEN JANUARY '78 AND DECEMBER '82 REPORTED IN THE 1983 NDS)

Characteristics	% Ever-Breastfed[a]		Mean Duration (mos.)[a]	
	1978	1983	1978[b]	1983[c]
ALL BIRTHS	84.6	83.1	12.6	11.3
1. Current Age of Mother				
15-24	87.8	85.3	11.4	10.4
25-34	85.4	83.3	12.6	10.9
35-49	80.1	81.3	13.5	12.7
2. Residence				
Urban	72.2	73.8	9.0	9.7
Rural	89.1	87.8	14.4	12.0
3. Region				
Metro Manila	65.0	67.9	6.6	7.8
Other Luzon	85.4	84.1	13.3	11.4
Visayas	89.1	87.9	15.0	12.9
Mindanao	86.6	83.9	12.2	10.8
4. Mother's Education				
No Schooling	93.3	90.8	17.0	12.5
Primary	92.3	89.4	15.9	12.4
Intermediate	87.4	87.7	13.6	12.0
High School	64.2	67.5	10.0	10.6
College 1+	64.2	67.5	7.3	7.9

[a] *Excludes cases with no information on breastfeeding practice, on the selected characteristics or on both.*

[b] *Prevalence/incidence mean based on proportions still breastfeeding.*

[c] *Arithmetic mean based on reported duration of breastfeeding for children who were weaned, had died, and those still breastfeeding during the 1983 NDS.*

SOURCE: *Zablan (1985, Tables 4 and 5).*

Table 11: PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY DISTANCE IN KILOMETERS TO VARIOUS HEALTH FACILITIES NEAREST TO THE HOUSEHOLD, 1978 AND 1981

Type of Health Facility	*Distance*			
	< 3 kms.	*3-9 kms.*	*10 kms. and over*	*Not Aware/ Not Concerned Not Stated*
1978				
Government hospital	25.1	27.2	47.7	–
Private hospital/clinic	41.2	29.7	29.0	–
RHU/PC	46.5	34.3	16.7	2.5
Barangay Health Station	67.2	27.6	5.2	–
1981				
Government hospital	21.3	18.6	28.6	31.5
Private hospital/clinic	32.8	18.1	14.6	34.5
RHU/PC	40.4	24.7	8.2	26.7
Barangay Health Station	42.3	14.3	1.8	41.6

SOURCE: *MOH, National Health Survey, 1978 and 1981.*

regarding the behavioral determinants of these proximate variables. Information regarding the first, is yet to be firmed up by more careful studies based on reasonably generalizable study populations. Information regarding the second is the subject of the next sub-section.

Socioeconomic Determinants

The relationships between socioeconomic factors and health outcomes can be empirically examined using two possible approaches, namely, (a) single equation methods whereby measures of health outcomes and measures of proximate determinants are jointly determined by a common set of exogenous socioeconomic factors; and (b) structural equa-

tion methods whereby socioeconomic factors not systematically correlated with biological endowments or preferences influences proximate determinants, while health outcomes are influenced by endogenously determined proximate determinants (*Schultz 1984*). Much of the literature on the socioeconomic determinants of health outcomes adopt neither of these approaches. Instead, the common approaches employed are (a) to directly relate health outcomes with socioeconomic determinants or (b) to relate health outcomes with both socioeconomic and non-endogenously determined proximate variables. The latter approach is considered methodologically incorrect (*Schultz 1984*).

SOCIOECONOMIC DETERMINANTS OF PROXIMATE VARIABLES. Several multivariate analysis of the determinants of dietary/nutrient intake, breastfeeding and child care have been undertaken using survey data from Laguna collected in 1974 through 1977 (see *Evenson 1978* for description of survey). These studies include those of Gonzalo and Evenson (*1978*), Valenzuela (*1978*), Popkin (*1978; 1980*), and King and Evenson (*1980*). Studies on the demand for health care and health service utilization is the subject of a separate review by Ching (*1986*), and hence will not be dealt with in this paper; so also with studies on fertility since these have been reviewed elsewhere (*Herrin 1980*).

Gonzalo and Evenson (*1978*), in a study of 573 Laguna households, found that the per capital household dietary intake of calories, protein and Vitamin A, respectively, as well as per capital household food expenditures varied positively with per capita household income (exclusive of wife's contribution) and household wealth, and negatively with household size. These results are as expected. The effects of mother's education and work status, however, differed by income level. At high levels of income, the mother's labor force participation increases per capita intake of calories but reduces the per capita intake of Vitamin A. At low levels of income, the mother's labor force participation reduces the household's per capita intake of calories. On the other hand, at high levels of income, an increase in mother's schooling reduces the household's per capita intake of calories. At low levels of income, however, an increase in mother's schooling tends to increase per capita intake of the various nutrients but each relationship is insignificant. It is difficult to interpret these results unambiguously. The mother's labor force participation (the mother's wage rate might have been the proper variable to use) may be capturing both the income effect and substitution effects at high levels of income, and the substitution effect (i.e. market work takes mother's time away from home production) mainly at low levels of income. Mother's schooling at high levels of income may be representing less taste or preference for home production.

Valenzuela (*1978*) using a sample of 543 household members representing 97 households in the Laguna case study, related individual dietary

intake measured as a percentage of recommended daily allowance (RDA) of calories, protein, Vitamin A and Vitamin C, respectively, as well as an overall diet rating, with a set of socioeconomic determinants. In addition to age and sex, these determinants include family size, mother's education, time spent in food preparation, per capita food expenditure, percent monetary income contribution of household member, and employment status of the mother. The results for each nutrient indicate that increased family size reduces nutrient intake adequacy, particularly significant for calories and Vitamin A. An increase in mother' schooling (reflecting skills) significantly increases nutrient intake adequacy of calories but has no significant effect on others nutrients. The time spent in food preparation significantly increases nutrient intake adequacy of calories, protein and Vitamin A but decreases intake adequacy of Vitamin C. This result is difficult to interpret. More time in food preparation may mean greater production of nutrients. On the other hand, more nutritious meals may take more time to prepare. An increase in food expenditures (reflecting income) increases nutrient intake adequacy of both calories and protein but has no significant effect on Vitamin A and Vitamin C. The labor force participation of the mother (partly reflecting income) increases nutrient intake adequacy of calories and vitamin A. Finally, the income contribution of the household member is generally positively related to nutrient intake adequacy, although it is significant only for Vitamin A. Valenzuela considered this result as providing "support for the hypothesis that families do take earning opportunities into account in distributing food among members" (p. 175).

With respect to an overall diet rating (mean nutrient intake expressed as a percentage of RDA divided by the number of nutrients x 100), the results indicate that an increase in diet rating is positively related to mother's education, mother's labor force participation, per capita food expenditures and food preparation time, and negatively related to family size. The variable indicating the income contribution of the member, while positive, is not significant.

Popkin (*1980*), using data from the Laguna survey on 99 households which yielded a total of 70 preschoolers, examined the socioeconomic and demographic determinants of their average daily calorie and protein intake. The independent variables include the mother's age, education, and labor force participation, per capita income of other household members, electricity in the home, number of children in different age and sex categories, and number of other persons living in the household. The results indicate that mother's age, education, and labor force participation which may be taken to represent experience, skill and additional income, respectively, are positively related to the preschooler's average calorie intake, but only mother's age is positively related to the preschooler's average protein intake. The presence of infants in the household reduces the preschooler's average intake of calories and protein, respectively, perhaps indicating that

mother's attention tends to be concentrated on the infant at the expense of other preschoolers. The number of boys aged 7-15 years increases the preschoolers calorie and protein intake, respectively, while the number of girls aged 7-12 years has a positive effect only on average protein intake. These older children are expected to supplement mother's time in the care and feeding of preschoolers. The number of other persons living in the household has a negative effect on both the calorie intake and protein intake of preschoolers. Given household income, it appears that the presence of other persons tends to reduce food available to preschoolers.

In the same study, Popkin examined the determinants of child care time (hours per week) and other activities, based on a total sample of 571 mothers. Among the significant results are the following. Mother's child care time increases with the presence of infants in the home at the expense of leisure and market production. The presence of other preschoolers increases both child care time and home production time and reduces leisure time. The presence of other persons in the household increases mother's child care time but reduces her home production time. Apparently other members substitute for mother's home production time thus allowing the mother to devote more time to child care. The other variables included in the analysis, i.e. education, mother's work participation, per capita income of household members other than the mother, and the electricity variable, were not significant.

Popkin also examines the effect of mother's labor force participation on intrahousehold time allocation. The results show that mother's labor force participation does not significantly affect child care time but significantly reduces her own leisure time. Mother's labor force participation, however, increases child care time of older siblings.

In another study using the Laguna survey data on 99 households which yielded 314 infants, Popkin (*1978*) examined the socioeconomic and demographic determinants of breastfeeding. The results of regression analysis for the total sample indicate the following: Higher breastfeeding participation is positively related to mother's belief that breast milk is best, the number of siblings age 1-6 years, and to some extent, the number of other persons in the household. Increases in the predicted wage rate of the mother in rich households reduce breastfeeding participation, but is not significant in poor households. The number of girls aged 13-15 years is negatively related to breastfeeding participation among women in poor households, but is not significant in rich households.

With respect to the duration of breastfeeding the belief that breast milk is best and the presence of preschooler children increases duration. An increase in the number of girls aged 13-15 years who can substitute for child care reduces duration of breastfeeding in poor households, but is not a significant factor in rich households.

Other variables hypothesized to influence breastfeeding participation

and duration such as income (father's wage rate and income of other household members) and the nutritional status of the mother were found to be insignificant.

A more general study of the determinants of time allocation among Laguna households was undertaken by King and Evenson *(1980)*. Time allocation (obtained by direct observation in 97 households) of the wife and husband was distinguished between market time, leisure time and home production time, the latter includes child care time (feeding and caring for children), food preparation time and other home activities. The results with respect to mother's time reveal the following. An increase in wife's wage rate does not significantly reduce her home time but an increase in husband's market wage does. Home capital increases home time. The presence of young children age 0-6 years, but especially infants, increases home time of the mother. The number of older children in the household has no significant effect on home time. An increase in wife's education however, reduces her home time in favor of market time. Controlling for her wage rate, education represents wife's preferences for market work over home production.

Summing up, the above studies indicate that the proximate variables (dietary intake, child care and breastfeeding) are significantly influenced by socioeconomic and demographic factors. Among the more important determinants are income and mother's education for dietary intake and demographic variables on child care and breastfeeding.

SOCIOECONOMIC DETERMINANTS OF HEALTH OUTCOMES. Available studies relating socioeconomic factors directly to health outcomes used several approaches. These include the use of simple correlations between regional life expectancy or infant mortality rate and selected regional socioeconomic indicators (*Herrin 1981; Flieger, et al. 1981; West 1981*), multivariate analysis of provincial infant mortality rates (*West 1981*), multivariate analysis of infant mortality rate based on constructed time series data (*Herrin and Paqueo 1985*), and multivariate analysis, based on household survey data of child mortality (*Martin, et al. 1983; Herrin 1984*), morbidity (*Layo 1977*), and nutritional status of preschoolers (*Battad 1978; Paqueo 1977, and Popkin 1980*). An examination of these is in order.

Taking advantage of the regional health indicators compiled by Zablan (*1977*) for 1970 or thereabouts, Herrin (*1981*) computed zero order correlation coefficients (r) between each of these indicators and the 1970 regional male life expectancy of birth estimated by Flieger, et al. (*1981*). The results reveal stronger correlation between regional male life expectancy at birth with percent literate of population age 6 years and over (r = 0.72) and percent of males in farming occupations (r = 0.71), than with indices of sanitation (r = 0.43) or with the percentage of families with annual incomes below P5000 (r = 0.28). Moderate correlations (r between 0.50 and 0.61) were found

between male life expectancy and indices of health facilities, health manpower, infrastructures (percent of existing roads made of concrete), and urbanization, respectively. These correlations suggest that both basic development factors (literacy, economic structure and infrastructures) and health service and related factors (sanitation and health facilities and health manpower) and important in explaining regional mortality differentials.

Another study of areal differentials of mortality is that conducted by Flieger, et al. (*1981*), where provincial life expectancies were found to be closely correlated with several socioeconomic indicators. These indicators include (a) percent of population urban (r = 0.51); (b) percent of towns with electricity (r =0.73); (c) percent of population 25 years and over with no schooling (r = -0.64); (d) percent of population 25 years and over with college education (r = 0.54); and (e) manufacturing establishments per 10,000 population (r = 0.47).

A study by West (*1981*) examined correlates of infant mortality at the regional and provincial levels. Using data on infant mortality derived from Flieger, et al. (*1981*) estimates and various indicators from the National Health Survey and the Area Fertility Survey, the study found the following bivariate relationships: higher regional infant mortality is associated with low level of female education, low socioeconomic status index, high proportion of the population with poor garbage disposal practices, low proportion of the population having access to safe water supply, high proportion of women using traditional health attendants, and greater proportion of the population living a great (more than 5 kilometers) distance from a hospital. On the other hand, using data from the census and Flieger, *et al. (1981)* provincial infant mortality estimates, and applying regression techniques, the study found that provincial infant mortality was negatively associated with the proportion of rural females with elementary education, proportion of households owning a radio, and proportion of households with pumped water supply; but positively related with the proportion of males who are farmers, and the proportion of women who married early.

Recently, it has been possible to examine more rigorously the macro determinants of mortality using time series data on infant mortality measured as the life table infant mortality probability, q_0 (*Herrin and Paqueo 1985*). The time series data on infant mortality probabilities (q_0) were constructed by taking the infant mortality rate (IMR) estimates derived from vital registration and census data as reported by the Disease Intelligence Center of the Ministry of Health, and correcting these for underenumeration and definitional difference (IMR vs. q_0) using Flieger's, et al. *(1981)* estimates of q_0 for 1960, 1970 and 1975. The correction factor for 1950 was set at slightly above that for 1960, since there was no comparable estimate of q_0 for 1950. Correction factors for each year in the intervals 1950-1960, 1960-1970 and 1970-1975 were derived by linear interpolation between benchmark years. The raw data as well as the resulting estimates of infant

mortality probabilities are discussed in Herrin and Paqueo (*1985*). The resulting estimates of infant mortality probabilities for the period 1957-1977 were then related to the following macro variables: employment rate in full-time equivalents, real price of food, real per capita personal consumption expenditures, and real cumulated per capita health expenditures. The results revealed that infant mortality rates are positively related to the real food price and negatively related to all the other variables. The authors then conjectured that in view of the unfavorable trends in all these macro variables in the 1980s, the trend in the first half of the 1980s is likely to show a slowing down of infant mortality declines.

We now turn to household-level studies of child mortality, general morbidity, and nutritional status.

The study by Martin, et al. (*1983*) described earlier with respect to proximate determinants also examined the socioeconomic determinants of child mortality. The socioeconomic determinants include mother's education, father's education, region of birth, urban/rural residence, and electricity. The results show that the parent's level of education, specifically that of the mother is negatively related to child mortality. The presence of electricity in the household which the authors considered a reflection of higher household income and community development is also associated with lower mortality. In terms of region of birth, child mortality is highest in Mindanao and lowest in Metro Manila, reflecting differential socioeconomic development and access to health facilities. The effect of urban residence is interesting. In the univariate model, urban residence is associated with lower child mortality. However, when other variables are introduced in the multivariate model, the effect of urban residence is positive. These results, according to the authors, suggest that factors associated with lower mortality are overrepresented in urban areas. When the effects of these other factors are taken into account, the apparent advantage of urban residence are significantly reduced, and in fact reversed. Note, however, that the region of birth, electricity and urban/rural residence are all measured at time of survey, while child mortality refers to past events. Hence, the usual caution in attributing causality from the observed relationships is in order.

In a study in Misamis Oriental province, Herrin (*1984*) examines the socioeconomic correlates of child survival, defined as the proportion surviving of children ever born to women age 35 years or less. The results indicate that mother's education, rural residence (residence in coastal or inland barangays vs. residence in municipal poblacions), and the number of years the community have had electric service from the rural electrification program are all positively related to child survival rate. Lower survival rate, however, is associated with greater distance of the household to the municipal poblacion. The results related to mother's education is as expected. Moreover, like Martin, et al. (*1983*) findings, child survival is higher in rural than in urban settings after controlling for other factors. The

electrification variable partially represents the supply of health service. Earlier exploratory studies in the province suggest that rural electrification is associated with the establishment of small emergency hospitals, with increased efficiency in the provision of health services in the rural health units, and with the increased access to safe water supply (*Herrin,1979*). The effect of distance to poblacion, which represents access to health care services, is as expected. Household income or wealth variables proxied by housing construction index and ownership of house, houselot and agricultural land, respectively, as well as the predicted wage of the husband and the wife, respectively, were found to be not significant.

With respect to morbidity, the study by Layo (*1977*) related acute, chronic or total illness in the household (number of reported illness during past 30 days prior to interview date) to a number of demographic, economic, and social variables; more specifically: number of household members in specific age groups, education of mother, per capita household income, location of residence (rural vs. urban), and health and nutrition beliefs and knowledge, in addition to three proximate variables described earlier. Layo found the following relationships: First, age is the most significant positive factor of morbidity. For total and acute illness, the most significant positive factor was the number of children age 0-5 years. For chronic illnesses, the most significant factor was the number of household members age 65 years and over. These results are consistent with the common age pattern of mortality and morbidity. Secondly, traditional health beliefs have a positive relationship with chronic illness. Thirdly, education of mothers beyond elementary schooling has a negative effect on total and chronic illnesses. Fourthly, per capita income did not have a significant effect on any of the morbidity measures. Finally, higher morbidity rate for total or acute illnesses is found in urban as opposed to rural areas, a finding consistent with the findings of Martin, *et al.* (*1983*) and Herrin (*1984*) for child mortality.

Finally, with respect to the socioeconomic determinants of nutritional status of preschoolers, Battad (*1978*) in a Laguna case study described earlier found that the per capita household income exclusive of mother's contribution is positively related to nutritional status, and its effect increases from the youngest (less than two years) to the oldest age group (4-6 years). However, the effect of income is small. Even for the 4-6 years age group where the effect of income is greatest, the estimated income elasticity is only 0.02, meaning that a doubling of income is associated with only a 2.0 percent rise in nutritional status (percentage of standard weight by age using Harvard standard at 50th percentile). Battad speculates that the low income elasticity may be due to the fact that "increases in income are not directed to preschool child nutritional status" (p. 163). She notes that in a study of Laguna households, a doubling of income was associated with a four percent rise in household per capita intake of calories and proteins (twice the effect of income on an individual child's nutritional status). She thus

concludes that "unless increases in income are directed to preschoolers through specific education or nutrition, the income effect may be largely lost" (p. 163).

Battad also found that mother's education which represents mother's productivity in child care, has a positive effect on nutritional status; the effect is largest among children less than two years.

Paqueo (*1977*), also in a Laguna case study, estimated a nutritional status equation wherein the proportion of third and second degree protein-calorie malnutrition (based on weight for age measure) among preschoolers is a quadratic function of per capita household income exclusive of the wife's contribution and the education of mother, respectively. The results suggest that there may be some threshold income below which the nutritional status of preschoolers may tend to deteriorate as their parents acquire more income. Beyond the threshold, increases in income reduce preschool children's malnutrition rates but at a diminishing rate. The same type of relationship was observed with respect to the education of the mother. Paqueo, however, was unable to provide an explanation for the observed empirical relationships and urged further examination of the underlying causal mechanisms.

Using data from the Laguna survey, Popkin (*1980*) estimated a reduced-form nutritional status equation from a sample of 269 households. Nutritional status was measured alternatively as (a) average child weight as percentage of normal weight for age; and (b) average child height as percentage of normal height for age. Mother's education was found to have a significant positive effect on both nutritional status measures. The presence of infants has a positive effect but the number of other preschoolers have a negative effect on nutritional status (weight for age). Because of Popkin's interest in examining the role of mother's market work on child care, he included mother's labor force participation in the equation. the result indicates that mother's labor force participation negatively affects preschooler's nutritional status (weight for age). However, Popkin notes that the effect appears to be quite large and out of line relative to what can be inferred from the results of a more complete analysis which he undertook in the same study (the results of which were discussed earlier under proximate determinants). Moreover, the results regarding mother's labor force participation cannot be taken as conclusive, because it too is a decision variable that should have been endogenously determined in the model.

In sum, these studies indicate the most consistent household socioeconomic factor strongly influencing increased child survival is mother's education. Controlling for socioeconomic factors, the urban environment is related with increased child mortality risk or morbidity rates. This may be due to greater crowding and pollution in urban areas than in rural areas. Nutritional status is clearly influenced by mother's education and household income. Several macro-policy variables are also seen to significantly influ-

ence infant mortality trends, particularly food price, public health expenditures, employment and personal consumption expenditures.

Consequences

In reviewing empirical research on tropical disease impacts, Andreano and Helminiak (*1986*) noted that research conducted thus far has been mainly restricted to short-term market production effects, and little attention, if any, has been given to examining health consumption effects, social interaction and leisure effects, short-term non-market production effects, and many of the hypothesized components of long-term production/consumption effects.

After reviewing the evidence concerning the effect of health and nutrition on output, Gwatkin (*1983*) concluded that the results of macroeconomic research linking health and/or nutritional status on the one hand, and economic growth on the other have been inconclusive. Interestingly, he finds that "... the minority of studies showing no relationship between health/nutrition status and economic output appears in general to be methodologically superior to the majority which suggests the existence of such relationships" (p. ii). Moreover, Gwatkin found that field research has been largely restricted to schistosomiasis, energy intake and iron deficiency, and that this research, with the exception of iron deficiency, has thus far failed to establish any consistent relationship between improved health or nutrition and increased output.

In another review of the health and development literature, Barlow (*1979*) remarks that the empirical studies on the whole are neither very convincing nor easily generalizable because among others, either these studies are characterized more by anecdotal evidence than by quantitative analysis, or the number of sampled observations is often very inadequate, or when correlations between two variables are reported, the direction of causation is not carefully analyzed.

In the Philippines, population-based studies on the economic and social consequences of health outcomes are hard to come by. The few recent studies include those of Popkin and Lim (*1977*) on the effect of nutritional status on learning, Paqueo (*1985*) on the effect of illness on child's educational attainment, and Herrin (*1986*) on perceptions regarding disease impacts.

In a study of 240 urban and rural children from Manila and Bulacan, Popkin and Lim (*1977*) examined the effect of nutritional status of children age 10-14 years on learning which takes place during their formal schooling years. Data on the learning process were collected through achievement tests and other survey instruments developed by the Survey of Outcomes of Elementary Education (SOUTELE) research group. Data on nutrition were obtained from anthropometric and biochemical measurements on the

sample children. The findings show that measures of nutritional status significantly affect measures of the learning process after taking into account socioeconomic and background factors in a multivariate analysis. These findings are interpreted to mean that a well-nourished child, as opposed to one who is not, is better able to utilize the opportunities available for learning (i.e. family background, school quality, and certain characteristics of the pupil and his closest friends). The authors summarize their specific findings as follows:

> *Children with an average income and other background factors and low-nutritional status have a composite learning index which is 45% below that of high nutritional status children with the same background (school, peer, SES). Similarly, the amount of learning increase associated with background changes is shown to be somewhat dependent on the nutritional status of the child. These results are quite consistent for each of the SOUTELE achievement tests. We also found that nutritional status is positively associated with the concentration of students and their participation level in extra-curricular activities and inversely related to their absenteeism level.*

The authors, however, point to a number of reservations concerning the interpretation of results. The most important ones concern the nature of the sample population and the lack of an initial ability variable. The sample includes only children who do attend school. These are most likely to have, on the average, higher nutritional status than those not enrolled. Moreover, because the point of reference is the learning process during the child's formal schooling years, there is a need to control for the initial ability of the child prior to schooling. Data limitation preclude satisfactory inclusion of the initial ability variable in the analysis.

In a recent study using national survey data (1982 Household and School Matching Survey), Paqueo (*1985*) noted that due to problems of repetition and dropping out, the proportion of 16-year old children who have not completed grade six is still substantial at 35 percent in 1982; among the 14-year olds, the percentage is 48. In order to understand this phenomenon, Paqueo undertook a multivariate analysis of the determinants of educational attainment among elementary school age children controlling for various child characteristics, socioeconomic and demographic factors, and community characteristics affecting schooling access and job opportunities. The results reveal that among children 7-12 or 7-13 years old (the sample sizes being 3,414 and 3,907, respectively), the poor health status of the child (child has a chronic or persistent disease) significantly reduced his/her educational attainment (i.e. highest level of schooling completed). The results also indicate that child's educational attainment is positively related with the "modernity" of mother's views about illness and health care. "These results",

according to Paqueo, "probably reflect the effects of illness and lack of proper health care on absences, dropping out and failure to meet academic requirements" (p. 377).

Based on an ongoing study of the social and economic consequences of schistosomiasis, Herrin *(1986)* recently reported on data concerning individual perceptions of disease impacts. The data suggests that individuals, whether currently infected or not, are generally aware of the potential adverse consequences of schistosomiasis on various aspects of individual and household welfare, including those aspects in which little is known, i.e. health consumption and social interaction effects and non-market production effects. Among the dimensions of short-term health consumption and social interaction effects that are revealed to be important are pain, stigma, and social interaction. In the long-run, infection is perceived to seriously affect marriage prospects, social mobility through marriage, and longevity. Moreover, infection is perceived to hamper economic mobility and affect labor supply. With respect to non-market production effects, infection is perceived to adversely affect home production activities of mothers and school performance of children. One may also view school performance in terms of human capital formation which has long-term implications for labor supply and economic mobility.

In the literature, the most studied effects are the short-term market production effects. The data on perceptions reveal a very high agreement (70 percent or more) among respondents that schistosomiasis adversely affects productivity in terms of level of effort, speed, and number of days worked. Moreover, infection of the household head is perceived to seriously affect household income and material welfare.

Herrin discusses certain points regarding the interpretation of the data from the standpoint of understanding and predicting behavior related to disease avoidance and demand for treatment. For this review, suffice it to say that the more difficult to measure or evaluate disease impacts, i.e. health consumption effects, etc. and, therefore, less studied impacts, are nonetheless salient to those who are affected. Innovative researches are therefore, needed to address some of these measurement issues.

V. SUMMARY OF FINDINGS AND RESEARCH DIRECTIONS

The research produced thus far based on national population data, multivariate analysis or innovative approaches has clarified a certain number of relationships and suggested new areas and methods for further expanding our knowledge base concerning the determinants and consequences of various health outcomes.

PROXIMATE DETERMINANTS AND HEALTH OUTCOMES. Current information on levels, trends and differentials on proximate determinants are still very uneven. There are interesting trends and differentials in breastfeeding and nutritional status based on data from demographic surveys and nutrition surveys, and on environmental sanitation variables from the censuses. However, there is very little consistent information regarding trends with respect to maternal and child health care, especially with respect to infant/child immunization, access to various health care services, and actual health care utilization.

At the household level, such proximate determinants as mother's age, birth order, birth intervals, breastfeeding, maternal nutritional status, sanitation, and child care has been shown to be related to specific health outcomes in the hypothesized direction. However, analysis can be improved by testing a more complete structural model. The failure of past analyses to undertake such tests is partly due to the lack of detailed data needed for this task. Past efforts to collect such data, however, have been particularly imaginative and noteworthy, e.g. the Laguna study by a team of economists, nutritionists and other health specialists, and they provide a strong foundation for further work.

SOCIOECONOMIC DETERMINANTS OF PROXIMATE VARIABLES. Major information regarding these relationships comes from a set of careful econometric analyses of the Laguna surveys conducted in 1974 to obtain general socioeconomic data and between 1974 and 1977 to obtain detailed information on nutrition, child care, breastfeeding and time allocation. Among the more clear cut and readily interpretable results from these studies are the positive effects of income or wealth and mother's education, and the negative effect of household size on various dietary intake measures. Also interesting is the finding that the presence of infants reduces the average dietary intake of preschoolers, perhaps because the mother's attention tends to be concentrated on infants, and that the presence of older children age 7-12 years increases average dietary intake of preschoolers perhaps because these children supplement child care time of the mother. With respect to breastfeeding, belief that breastmilk is best significantly increases breastfeeding participation. Of interest is that this belief is not correlated with education, implying that much can be gained by information campaigns to encourage breastfeeding especially among less educated, and usually high fertility, women. While these findings are revealing, they refer only to rural Laguna households. Are these findings generalizable to the rest of the population? It might be useful to replicate these studies in other Philippine settings at the same time improve upon some of the approaches to modeling behavior adopted by these studies. Moreover, these studies have not addressed other proximate determinants, especially those related to environmental contamination, i.e. sanitary toilets, safe

water supply, personal hygiene, etc.* The objective of such studies will be to learn the constraints which individuals and households face, and subsequent behavior modification.

SOCIOECONOMIC DETERMINANTS OF HEALTH OUTCOMES. At the household level, mother's education comes up as the most consistent factor related to improved child survival rates, reduced morbidity rates and higher nutritional status of preschoolers. Income or wealth variables when they are included in the analysis do not appear to be significant except with respect to the nutritional status of preschoolers. Exogenous community level factors which proxy for health service availability appear important determinants of child mortality. Of great interest is a consistent finding in three separate studies, two on mortality and one on morbidity, that an urban setting, when other socioeconomic factors are controlled for, tend to have an adverse effect on health. The urban setting may represent certain health hazards, i.e. overcrowding, pollution, etc. that have yet to be explicitly incorporated in the analysis. Finally, health beliefs, independent of mother's education, appear to be a significant factor in increasing morbidity rates. This suggests that information campaigns to modify health-related beliefs and practices could well be an important component of any health-promoting strategy.

At the national level, the results of the only study using time series data identify the macroeconomic context in which further infant mortality decline can be expected. The macro variables, i.e. real food price, employment rate, per capita consumption expenditures and real per capita health expenditures are highly sensitive to various economic policies and public expenditure priorities.

Analysis of the socioeconomic determinants of health outcomes, specifically mortality, are often difficult to undertake not so much because of methodological problems but more so because of data problems. Deaths are rare events and data collection can easily become an expensive undertaking. For the other health outcomes, regular national demographic and nutritional surveys could be designed to allow collection of more socioeconomic data, while regular household surveys on employment and incomes could be designed to allow collection of health-related data. Analysis of these richer data sets could help increase current limited information for policy guidance.

CONSEQUENCES OF HEALTH OUTCOMES. Of all health and relationships, empirical evidence on the social and economic consequences of various health outcomes is the most limited. Yet this is probably one area where strong evidence is needed in order to justify the demand for a greater share of the currently available scarce resources for health-promoting activities. The few studies reviewed in this paper suggest that such consequences are not trivial. Except for the study of perceptions, the remaining

studies cover only health impacts on learning and educational achievement. There is practically no reliable quantitative information regarding impact on the other dimensions of welfare to guide policy decisions. At the level of the household, the perception data reveal that disease is perceived to have potentially adverse consequences on several dimensions of social and economic welfare. Yet not much is known on how people actually perceive and give importance to each of these specific dimensions to affect their decisions regarding health-promoting or disease-avoidance activities, and therefore, regarding their allocation of household resources for health.

As a final note, it can be asked: is it possible to know everything wanted and needed? In a rather pessimistic tone, Barlow (*1979*), after reviewing the literature, concludes: "The relationships between health and economic development are so complex that the definitive study in this area will never be made" (p. 47). From a purely scientific standpoint, this view is probably correct. But from the standpoint of policy guidance, what is only needed, recognizing that information is costly, is to generate enough relevant information to help policy makers improve their decision-making processes such that the probability of making correct decisions is higher than the usual 50 percent easily obtainable from a pure guess. How much higher than 50 percent depends upon the importance of the policy decision to be made and the cost of information.

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Structures and Interventions in the Philippine Health Service Delivery System: State of the Art

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I. INTRODUCTION

This paper discusses the state of the art of the structures and interventions in the Philippine health service delivery system. The following topics will address this purpose: (1) the conceptual framework which will be the basis for describing the structures and interventions for health service in the Philippine context; (2) a description of the trends and patterns in structures and interventions as components of the health service system and a discussion of the insights gained regarding each pattern based on the review of literature; (3) an analysis of the gaps in the knowledge and the policy problems indicated or implied in these materials that may constitute a research program in health policy.

Existing bibliographies on health had been reviewed in the preparation of this study, notably those by the Philippine Council for Health Research and Development (PCHRD) particularly: the *Inventory of Completed Researches 1980-84, Inventory of Ongoing Researches 1984* and a computer print-out of current researches furnished by the same office and the bibliography prepared by Ledivina V. Cariño with the assistance of Rosa Cordero, both of the U.P. College of Public Administration.

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Some publications of key academic and research institutions concerned with health research and development, composed of both empirical studies and reflective essays, had been reviewed to determine the current trends and patterns. These institutions include: the De la Salle University, Population Center Foundation, UNICEF (United Nations Children's Fund), U.P. Institute of Public Health, U.P. Institute of Social Work and Community Development, U.P. College of Public Administration and WHO (World Health Organization). Documents prepared by service institutions especially those released by the Ministry of Health and the Task Force People's Health, a voluntary organization were also studied.

Considering the voluminous materials written on the subject matter, a conscious effort was required to retrieve those that review past researches on a given area and to highlight the findings and conclusions of these materials.

II. CONCEPTUAL BACKGROUND

The national health system can be defined as the "coherent whole of interrelated component parts ... which produce a combined effect on the health of the population" *(Kleczkowski et al. 1984a:5)*. The major components of a health system include: the health resources, the organized arrangement of resources, the delivery of health care, economic support and management *(Kleczkowski et al. 1984b:13)*. This paper focuses mainly on two of these components, namely: the organizational structure for health services and the delivery of health care (or the actual strategies adopted for the extension of health services).

A. *Organizational Structure*

The first component, organizational structure, refers to the arrangement of resources that are "necessary to bring health resources into effective relationships with each other, and also to bring individual patients or community groups into contact with the resources through health care delivery mechanisms" (*1984b:19*). The structure may be classified according to *degrees of formality* or level of institutionalization of the organization. In other words, is the structure duly recognized within a legal framework? Some structures may be constituted formally, and some informally.

PUBLIC VS. PRIVATE. The concern for health may be spearheaded by "actions of government" and by those "outside of government" *(Kleczkowski et al. 1984b: 19)*. Actions of government related to health include those undertaken by national health authorities and other governmental agencies. The national health authority is often the principal government agency

tasked with health activities. Other government agencies in turn, may be concerned with parts of the health system whether independently or in collaboration with the national health authority.

Outside of government, some organizational arrangements concerned with health services may be undertaken by private hospitals and clinics. Other non-governmental organizations (NGOs) may be tasked with extending voluntary health services for the public like those initiated by foundations, religious institutions, civic clubs and international organizations. Some institutions or groups may also forge health activities for their respective constituencies, such as industrial firms or labor unions, which may protect the health and safety or their members from diseases and hazards related to the work environment. Further, some individuals may independently extend health care services exemplified by the efforts of private medical practitioners, para-professionals (e.g., midwives), and traditional healers *(e.g., hilots, herbolarios).*

CENTRALIZED VS. DECENTRALIZED. Within the structure of government, two broad classifications are needed in order to understand the organization of resources for health.

One has to do with the **locus of decision-making** in fulfilling the activities of planning, implementation and monitoring/evaluation of health activities. Two options are available: **centralization or decentralization** *(See Bautista 1984a:1).* Centralization is a state or condition in a government system where there is concentration of powers and responsibilities at the center. Decentralization, in turn, entails dispersal of powers and authority to the different levels beyond the topmost leadership in the hierarchy. Decentralization may be achieved through (1) devolution - by transferring powers and functions of a higher level to those in the periphery or (2) deconcentration - by delegating authority from central headquarters of a ministry to subordinate units to enable them to decide cases and problems arising within their functional responsibilities. Unlike devolution, deconcentration does not entail delegation of substantive responsibilities to the field offices but only some minor responsibilities, which are often administrative in nature *(Bautista 1984a:1).*

SECTORAL VS. INTEGRATED. A second structural arrangement within government has to do **with the number of functions pursued** by the national health ministry. This arrangement may either be **sectoral** or **integrated.** A sectoral structure is one which "purports to cover 'within health' functions, i.e. any aspect of preventive, promotive, curative or rehabilitative medicine or any combination of these" *(Cariño 1982:7).* On the other hand, an integrated structure undertakes "programs, involved not only in all or certain aspects of health care, but also in other services such as other social (education, welfare), economic (infrastructure construction,

income-generating projects), political (organization or electoral activities, political re-education), and cultural (those relative to religion) *(Cariño 1982:7)*. These activities altogether, are seen to improve the overall health status and well-being of the population.

B. Strategies

The second component of the health system considered here, is the interventions or strategies applied in the delivery of health care. More specifically, this component responds to the issue of the actual processes applied in the delivery of health care. There are various ways by which this topic may be tackled but for the purpose of this paper, the following will be considered:

☐ The level of citizen-participation in the different processes such as planning, implementation and monitoring/evaluation of health and health-related activities or any combination of these activities.

☐ Health care delivery according to the objective delivered - whether promotional, preventive, curative, rehabilitative and/or sociomedical *(see Kleczkowski et al. 1984b:23)*. Kleczkowski et al., define these activities as follows:

> *... the **promotion** of health extend far beyond the traditional functions of health care institutions and aim at creating environmental conditions and human behavior that can contribute positively to health. **Preventive activities** are directed not only against communicable diseases, but also against many other preventable conditions such as rickets, endemic goiter, and dental caries. They include in addition to immunizations, such interventions as vitamin supplementation, iodination of salt, flouridation of water, and the provision of guards on the machinery to prevent industrial injuries. **Curative activities** consist in the use of drugs, surgery, or other procedures to interrupt a pathological process or to reduce harmful consequences of a disease .... **Rehabilitation** ... aims at the restoration of physical, mental, and social functions through relevant medical procedures: this is often done with social services (e.g., sheltered work, reorganization). **Sociomedical care** applies particularly to irreversible profound disability or progressive illness in which neither treatment nor rehabilitation can bring improvement (1984b:23).*

☐ The level of complexity or sequential order in which health needs of the population are served whether primary; secondary or tertiary

(*Kleczkowski et al., 1984b:23*). These strategies of health care had been distinguished by Alfiler (*1984:5-6*) in the following manner. Primary care is a health service which requires minimum medical facility and equipment. This is often extended on an "out-patient basis." Secondary care is delivered by a medical practitioner and requires basic hospital facilities and multidisciplinary support of other doctors and services. Tertiary care is rendered by a specialist for complicated cases needing specialized diagnostic and treatment facilities and multidisciplinary support services. This is usually performed on an "in-patient" basis.

☐ Extent of reliance on scientific methods and strategies in administering health services. Three approaches had been described by Cariño (*1986:15-16*) namely, Traditional, Westernized and Primary Health Care. Traditional Health Care (THC) is characterized by reliance on indigenous healers(*e.g., herbolarios, hilots*) whose skills had been derived primarily from native talent or from acquisition of skills based on cultural practices or some supernatural beliefs. Westernized Health Care (WHC) emphasizes the centrality of hospitals and medical professionals in the administration of health whose strategies and approaches had been derived from scientific training. Furthermore, WHC considers health as the absence of illness and regards the passive role of the community in responding to health problems. Primary Health Care (PHC), the third approach, considers the important role of the paramedics, indigenous health workers, as well as professionals whose skills and technology are based both on science and indigenous aspects of health care. The community is viewed as an active participant in the maintenance of "well-being" rather than of health problems only.

☐ Delivery of health services according to certain groups or sectors in the population like those targetting the young, the mothers, the couples, the disabled, the occupational groups, the aged, and the like.

III. TRENDS AND PATTERNS

The trends and patterns in the Philippine health system may be summarized into the following points: (1) the existence of a pluralistic approach in dealing with structures of health service delivery; (2) the competing tendencies towards decentralization and centralization for planning and implementing development programs of government which limit the efforts for health and other related activities; (3) the impetus given to participatory strategies in health propelled by the launching of Primary Health Care by the government and the private sector; (4) the predominance

of curative expenditures over promotive and preventive health care activities; (5) the existence of Westernized, Traditional and Primary Health Care approaches and the variable factors influencing reliance; (6) the growing concern towards selected groups in the population like women, children and couples to the neglect of other sectors like labor and the disabled.

Each of these patterns will be discussed in the following sections and the insights gained from the review of literature.

A. Pluralistic versus Unitary Structure

There are various health delivery systems in the Philippines other than those provided by the government. Pursued independently, these various health programs for the public, signify the pluralistic strategy of government in dealing with these structures. Thus far, there is no unified structure of public health service for the citizenry.

GOVERNMENTAL NETWORK. In the government, the prime agency responsible for implementing the public health program is the Ministry of Health (MOH). Other government agencies provide support or cooperate in the implementation of the health program such as the Ministry of Education, Culture and Sports (MECS) for health education; Ministry of Labor and Employment (MOLE) for the maintenance of health of the work force and enforcement of safety standards in the work environment; and, the Philippine Council for Health Research and Development (PCHRD) as the agency in charge of coordinating research and development efforts in the health sector. The MOH also cooperates with other institutions as it promotes their respective organizational objectives and commitments. For example, the family planning and nutrition concerns of the Commission on Population (POPCOM) and National Nutrition Council (NNC), respectively, are both integrated into the health development program implemented by the MOH.

Within the governmental structure, health service in the rural populace has improved substantially since the Restructured Rural Health Care Delivery System (RRHCDS) was instituted in 1975. This move expanded rural health service with the creation of barangay health stations (BHSs) as the satellite stations under a rural health unit (RHU) located in the center of a municipality. The BHS is manned by a midwife, while the RHU is composed of the rural health physician, rural sanitary inspector and rural health midwife. Both units perform primary care activities. These units complement the hospital network which responds to primary, secondary and tertiary cases.

As of 1984, there are 367 public hospitals, 1991 RHUs serving 1,700 municipalities and 7,991 BHSs to a total of 43,000 barangays *(NCSO 1985:276)*. Thus, each BHS covers 3,000 to 5,000 people, although the ideal ratio is 1 to 2,750 *(World Bank 1984:48)*. The problem is that the RHUs

and BHSs have also acquired some notoriety for their lack of facilities and staffers *(M. Tan 1986:7)* which affect their effective delivery of services.

Other related services are rendered through specialized clinics like chest clinics, skin clinics, family planning clinics, social hygiene clinics, mental hygiene clinics, dental clinics, malaria units, schistosomiasis units, filariasis contral units and nutriward units.

The hospital network is also stratified according to the care it renders, whether primary, secondary or tertiary. In 1981, 14.3 percent of the public hospitals extend primary care; 28.2 percent, secondary; and, 57.5 percent, tertiary.

PRIVATE NETWORK. The health services rendered by the private sector is done through a network of private hospitals, private physicians, traditional healers and voluntary non-governmental organizations. There are more hospitals manned by the private sector than the public sector. Of the total number of 1,594 hospitals in 1984 *(Pujalte 1986:26)*, 1,227 or 70.7 percent belong to the private sector. About 72 percent of physicians and 50 percent of all categories of formally trained health manpower (doctors, nurses and midwives) are also employed by this sector *(World Bank 1984:50)*. Traditional healers like *hilots* number about 39,558, 37.7 percent of whom had been trained as of 1985 by MOH as resource base for primary health care *(Cariño 1986:20)*. About 331 non-government organizations also independently undertake health programs *(Reodica, 1983)*. (For a detailed description of these organizations' programs, see *Angara 1978; Cariño 1980; and Reodica 1983)*.

ASSESSMENT. It may be worthy to note, though, that these available resources from the public and private sectors are inequitably distributed in the country, with the urban and accessible places largely benefiting from these resources *(World Bank 1984:50)*. This is because while government hospitals are well distributed on a regional basis, only about 54.4 percent of hospital beds are located in the rural areas. Furthermore, private hospitals are confined to larger urban areas and two thirds of private physicians are concentrated in three urbanized and richer regions. Also, while primary health care can easily be extended by 93 percent of the RHUs and BHSs which are outside Manila, the rural clinics are often located in towns which are inaccessible to people residing in mountainous and remote places.

A promising development is the increasing thrust of NGOs to embark on a community-based approach which essentially shares the same features as the primary health care (PHC) approach. These efforts can be fully maximized, according to Reodica *(1983:49)*, by instituting a system of information exchange and dissemination among the NGOs, the government and the community to benefit from the experiences in each other's efforts. Reodica also suggested the importance of a joint or coordinated evaluation

of programs and projects implemented by both sectors to point out what aspects in their respective programs need modification, as well as to provide health planners supportive data for further planning.

Cariño *(1981:205)* has for a long time now called for a need to realize the mandate that delivery of health care is a joint responsibility of the public and the private sectors. She said that it is urgent for a country with measly resources to embark on a concerted effort to avoid redundance and duplication. She suggested that "government should take the private sector deployment of health resources into account when planning its own: where a private practitioner/clinic/hospital exists, government should not duplicate costly resources by locating there also" (*Cariño 1981:205*). These private health network could then be made a part of the referral system.

B. Decentralization to Recentralization

BROAD POLITICAL-ADMINISTRATIVE FRAMEWORK. The contextual framework in which the national health ministry operates could affect health planning and implementation to be more responsive to the needs of the grassroots. The extent to which the people themselves can get involved in the decision-making process depends upon the general characteristic of the structure - whether it is centralized or decentralized.

The experience of the Philippines with martial rule under deposed President Marcos showed contradictory tendencies for centralization and decentralization in the planning and administrative framework of government *(Bautista 1984a)*. After martial law was declared in 1972, the Integrated Reorganization Plan (IRP) was passed and this ushered a major revamp in the structure of government. The plan aimed to decentralize powers and responsibilities to field units and hoped to make the government closer to the people. A key innovation in the planning structure is the decentralization of the planning effort through the formulation of Regional Development Councils (RDCs) in all the regional centers. The councils are to be composed of representatives of government agencies implementing sectoral programs. Elective officials are also a part of these councils in order to ventilate the needs and demands of their respective local areas. In practice, however, national officers pursuing sectoral programs primarily determine th priorities of their respective field offices and the development plan is formulated within the guidelines prepared by the national offices. Development councils have only operated as "talking fora" rather than as bodies that formulate substantive programs in response to local demands. Central control has been enhanced further by the presidential appointment of the RDC Chairman in the region. Hence, the line of control comes directly from the Office of the President rather than from the planning ministry.

In the administrative machinery, the IRP has mandated the need to locate field offices of national ministries implementing nationwide develop-

ment programs in uniform regional centers. This move was envisioned to facilitate cooperation and interaction among the different field offices. There were attempts to decentralize responsibilities to the local offices of national line ministries, but these were predominantly administrative in nature (e.g., appointment of personnel, promotion, approving leaves of absence) rather than substantive (*Bautista 1984a*). Hence, decentralization was undertaken mainly through deconcentration rather than devolution.

With regard to national-local government relationships, there are also competing tendencies towards centralization and decentralization. The 1973 Constitution expressed concern for the state to "guarantee and promote autonomy" to local government units "to ensure their fullest development as self-reliant communities". Yet, contradictory policies and practices have worked against the full realization of local autonomy. According to local government experts like Ocampo and Panganiban *(1984a:4)*, "local governments were progressively stripped of important functions and powers during the last decade.*

The attempt to recentralize local government powers occurred when the traditional functions of administering police services, local finance and local utilities had been referred back to the national government. While they assume local taxing powers, the revenues from this activity are for the most part transferred to the national coffers. In spite of the huge earnings of some local units, they have had to depend on the allotments and aid from the national government. Then, as mentioned earlier, local governments largely depend on national agencies to implement major development programs in their respective areas. Substantive planning and implementation hinge primarily on national government efforts thus undermining autonomy and local initiative.

MOH EFFORTS TO DECENTRALIZATION. On the whole, the MOH had attempted to be responsive towards decentralizing powers and responsibilities to local field offices. In response to the call of the IRP to bring the government closer to the people, structural innovations in the administrative framework had been undertaken through the introduction of the RRHCDS in 1975. This was a big leap in its efforts since 1953, when public health care and medical services were delivered mainly through hospitals and clinics, mostly located in urban areas. Then in 1954, city health offices in populated areas and rural health units in towns were established. However, as noted

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* As a backgrounder, local governments are "political and administrative subdivisions of the nation-state and are legally the corporate entities with the powers to elect their governing bodies, impose taxes, provide services, and perform other governmental functions within their geographic jurisdictions" (*Ocampo and Panganiban 1984b:1*). As of 1982, there are 73 provinces, 60 chartered cities and 1,507 municipalities altogether employing nearly 145,000 elective and appointive officials. At the lowest level of the hierarchy are 45,000 barangays.

earlier, despite efforts to deliver services at the lowest level of the barangay through RRHCDS, the BHSs are still located in more developed areas.

The second major effort to streamline the MOH bureaucratic machinery occurred when Executive Order No. 851 was put into effect on December 2, 1982. This directive has led to the integration of health and medical units at the field operations level, earlier carried out independently by the RHUs and District Hospitals at the municipal level. The RHUs were concerned with promotive, preventive and primary care activities. The District Hospital and other related units were concerned with curative functions. By virtue of E.O. 851, the District Hospital became the integrating unit for both health and medical services. At the provincial level, integration was effected between the Provincial Hospital and the Provincial Health Office under the direction of the Integrated Provincial Health Office (IPHO). This merger also meant the consolidation of the budget for the two structures which were formerly managed by the Regional Health Office, thus transferring the routine financial and administrative functions of the Regional Office to the IPHO. An additional feature of this directive is the need to provide for a monitoring and evaluation system to determine the performance of MOH programs. On the whole, however, the MOH machinery is still quite centralized in its efforts as the field people have limited flexibility to adapt certain procedures to local situations (Demographic and Research Foundation, 19:119). Substantive responsibilities are still centrally-directed. Only the administrative responsibilities are delegated to the field units.

A third landmark in the efforts to decentralization is the implementation of primary health care (PHC), particularly in rural areas. While the two earlier innovations are remarkable efforts towards streamlining a "top down" delivery system, the institution of PHC has juxtaposed grassroots participation with the former strategy. Furthermore, PHC entails substantive participation among the community residents in defining health and health-related activities for their area. Thus, PHC will be separately discussed in the following action.

C. Primary Health Care (PHC)

BACKGROUND. Primary Health Care, as a strategy for health care, has been given a lot of attention and support by both the public and the private sectors. It was formally launched as a nationwide strategy by the MOH on September 11, 1981. Then, it was held that the health services extended through PHC can supplement the public health care services that MOH implements through its primary, secondary and tertiary health care outlets.

The experience of the private sector, however, antedates the MOH effort. In Jaime Galvez-Tan's account *(1986:3)*, PHC has been implemented by independent practitioners affiliated with hospitals and clinics even before the WHO Alma Ata declaration for the universal application of PHC. Since

the late 60s, these doctors were: De La Paz with the Katiwala Program in Davao City, Viterbo of Roxas City, Macagba of La Union, Flavier of the Philippine Rural Reconstruction Movement, Campos of the University of the Philippines Comprehensive Community Health Program, Solon of Paknaan Cebu Institute of Medicine Project and Wale of Silliman University. Tan pointed out though, that these efforts were quite limited and were not felt nationwide until 1975. When the Rural Missionaries of the Philippines launched their pilot community-based health programs (CBHPs) in different parts of the country, the approach was given prominent attention. Thereafter, their experiences were adopted by the National Council of Churches (Protestant group) in 1977 and by AKAP (secular group) in 1978, both spearheading nationwide activities. J. Tan *(1986:3)* points out that these CBHPs have their national and regional coordinating bodies.

The chief characteristic of PHC is people participation in planning, implementing and evaluating health care activities which are at the same time integrated into the socio-economic development of the local community. Hence, PHC necessarily merges both participatory and integrative strategies. Furthermore, to effectively respond to the needs of the community, intersectoral collaboration is employed to harness the available talents of the government, the NGOs and the community. Since it emphasizes the importance of engaging in health activities at a "cost" that is "affordable" to the community, reliance on indigenous resources like herbal medicines are encouraged.

PHC has often been likened to the government's community development (CD) approach which began in the 1950's. Okamura *(1986a)* and Diaz and Nierras *(1986)*, however, caution that the CD approach mainly involves the deployment of multi-purpose workers who were given the responsibility for organizing the community and for making members identify felt needs that are largely centrally-directed. PHC, on the other hand, expects people to identify their own needs and demands independent of the expressions of national health authorities. People should actually get involved in different phases of planning, implementation and evaluation. Okamura says that participation should veer towards the "attainment of power in terms of economic and political action and access to resources. Such a change in power relations ... is a necessary condition for the structural changes and the redistribution of resources, wealth and privileges that is implied in the notion of development" *(Okamura 1986a:14)*.

The levels of participation mentioned by Okamura *(1986a:14)* and Hollnsteiner *(1976:11-18)*, roughly coincide with the three typologies of PHC formulated by J. Tan *(1986)* and Cariño *(1986)*. These are: "community-oriented," "community-based" and "community managed" PHC. These typologies may be useful in assessing the level of PHC implementation by certain entities. "Community-oriented PHC considers community residents as beneficiaries of health programs. While voluntary health workers are

tapped from among the members, community organizing is a means to change people's attitudes enabling them to cooperate wholeheartedly with health authorities. A "community-based" PHC, on the other hand, considers community residents as partners in health care and other community programs. Voluntary workers are tapped as volunteers for health services and as community organizers. Community organizing then becomes an opportunity for people to develop leadership and management. The third category, a "community-managed" PHC, is characterized by the active role of the residents as *managers* of their own community. Voluntary workers are only tapped as part of the management team. Community organizing is considered the main tool for empowerment and a lasting safeguard to protect the community's interests.

STREAMLINING OF MOH STRUCTURE TO ACCOMMODATE PHC. The structure of the government machinery, has been streamlined to make participatory involvement more effective. Primary Health Care Committees (PHCCs) have been constituted in the different levels of the hierarchy beginning with the lowest political subdivision of the barangay, to the municipality, the province, the region and then, the national level. The Barangay Primary Health Care Committee (BPHCC) is envisioned to identify health needs, mobilize local resources, manage and monitor health and health-related action programs of the community. The higher level committees are to oversee, monitor and provide policy framework for PHC planning and implementation. These are committees for collaborative efforts since they are composed of representatives from government and the private sector. Incidentally, the PHC committees are at the same time the nutrition committees. Regular participation among the different committee members is a nagging problem which may stunt the effective implementation of PHC activities (*Torres 1985:156*).

The programs are to be implemented by the volunteer workers called the Barangay Health Workers (BHWs) who are the indigenous manpower to be trained in managing community-based health and related projects. These may include management of the *Botika sa Barangay,* propagation and utilization of herbal medicines, income-generating activities and other community projects, like drainage construction.

EMPIRICAL STUDIES ON PHC EXPERIENCES:PUBLIC AND PRIVATE. Considering the innumerable materials on PHC, the review on its status shall be made around the following topics: (1) the role of PHC in effective service delivery; (2) a comparison of the performance of government and private-sponsored PHC; and (3) the factors affecting the effective implementation of PHC and other issues or dilemmas surrounding PHC implementation.

1. *PHC Effectiveness*

The study of Cariño and Associates (*1982*) focused on the interrelationship between participation and integrated approaches as factors that could affect the effective delivery of health and health-related services. Program effectiveness was measured in terms of MOH health indicators, people's awareness of the program, clientele coverage and people's level of satisfaction. Focusing on four development programs (e.g., Makapawa, Sudtonggan Human Development Project, Comprehensive Community Health Program and Project Compassion) which altogether combine these twin approaches *vis-a-vis* the sectoral strategy of the RHU, affirms the hypothesis for two PHC strategies. Less effectiveness on the part of the two other PHC strategies cannot be attributed to the failure of PHC itself since "citizen participation" has not fully materialized and the administrative component for PHC (e.g., personnel) has not been sufficient to respond to the multiple responsibilities of an integrated strategy. The study ends with a comment that: "the most successful are the programs which are based in the community, touching on the holistic needs of the human person and challenging the people themselves to take responsibility for their own state of health" *(Cariño and Associates 1982:224)*. A sad note to this finding, though, is that these community-based activities have not filtered down to the more depressed sectors of the population. The more affluent were the ones who derived more benefits from these efforts. This argument is further confirmed by Castillo's review and evaluation of participatory approaches implemented by various development programs. Her interim verdict was: "benefits from participatory development have yet to substantially accrue to the rural population"(*1983:581*).

2. *Comparing Public and Private-Sponsored PHC*

A comparison of "success" stories in the private and public sectors implementing PHC undertaken by Cariño and Carada (*1986*) shows the more "impressive" performance of PHC managed by an NGO. The cases compared were the Community Government Collaboration for the Improvement and Maintenance of Health (CGCIMH) administered by Region VIII-MOH and the Makapawa, managed by the Roman Catholic Church in Leyte.

The two institutions emphasized disease prevention as an important aspect of its health activities. Both also considered the citizen's involvement in performing community activities. However, Makapawa is more effective in its thrust since citizen participation is considered both as a means and an important result. CGCIMH, on the other hand, considers participation as a significant means to achieve results. The results that are particularly monitored are those concerning health. Thus, Makapawa puts a lot of effort on the process of self-evaluation to enable the BHWs and the community to

reflect on how to effectively implement participatory strategy.

Another distinction is the way health is viewed. Makapawa considers health as an entry point rather than the main problem, unlike CGCIMH's emphasis on health. In Makapawa, problem identification is more holistic or comprehensive in scope. The exercise is even infused with "class analysis" and because of this, Makapawa was held suspect by the past regime for being left-leaning.

A comparison of the BHWs efforts shows that in Makapawa, community organizing is given more attention than by their counterparts in CGCIMH. The BHWs of CGCIMH devoted time on administrative requirements rather than on community organizing. Consequently, Makapawa has more lasting effects on its constituency than CGCIMH. Based on Cariño's (*1986*) typology of the different levels of PHC, CGIMH still remains to be "community-oriented" as the tasks or activities are largely centrally-directed. BHWs form part of the MOH network and complements the health service delivery. Makapawa is nearly "community-managed" since the community members rather than BHWs take an active role in providing leadership to the different activities of the community which are beyond health.

3. *Factors/Issues Affecting Effective Implementation of the PHC Strategy*

The factors that are influential in determining the effectiveness of PHC may be grouped into the following broad categories: those that concern the community, the BHWs; the development agency implementing PHC and the society at large. Other issues will also be raised as each broad factor is analyzed. The factors or issues peculiar to the MOH-PHC and the PHC initiated by NGOs, will be discussed subsequently.

A major concern in promoting participation among the community residents is the adequacy of their **social preparation** to engage and manage community activities through self-reliance. (*Alfiler 1982a, 1982b; Castillo 1983; Diaz and Nierras 1986; Okamura 1986b; Torres 1985; Valenzuela, n.d.*). A major stumbling block to participation in "social preparation" activities may be the economic difficulties among the constituency.

People become more concerned with problems of self-sufficiency. As Castillo has once lamented, "the poor do not have assets and yet the burden of development is entrusted to them" (*1983:581*). Okamura responds to this dilemma by suggesting the need to improve the people's socio-economic status before expecting their full mobilization for collective action (*Okamura 1986b:223*). Thus, he says, it is not unusual that economic activities take precedence over matters related to health in PHC.

On the part of the *Barangay Health Workers*, it has been a common concern to make them attuned to the process of "community organizing" (*Alfiler 1982a:89; Cariño 1986:73; Okamura 1986b:226*) rather than of

delivering results for health only. The barangay health workers (BHWs) are not simply health delivery persons, but are also facilitators enabling the communities to identify in a concerted manner, their needs and demands and to work on ways to respond to these demands. The problem is that some projects implementing the PHC strategy fail to extend to the BHWs enough flexibility to modify their approaches (*Guerrero and Jurado 1983:171*). They are not adequately prepared or encouraged to adopt a "self-correcting" process (*Alfiler 1982a:85*) thus enabling them to modify approaches that do not work out well. Other overriding issues raised in different papers (*Alfiler 1982a; Cariño 1986; Okamura 1986b; J. Tan 1986*) are: how the BHW's efforts and commitment may be sustained; what incentives can be provided to prevent them from dropping out; and should BHWs be paid at all? If PHC encourages that health be woven into the socio-economic development of the community, should a voluntary worker be better off as a multi-purpose worker rather than as a health worker?

On the part of the implementing agency, there has been an overriding clamor for leaders to be oriented towards making people actively involved in the different levels such as planning, implementation and evaluation. The leaders' commitments could affect the overall thrust of PHC or the manner in which PHC policies will be implemented. In addition, intersectoral collaboration among the different sectors should be fully encouraged. This means shifting orientation from a "top-down" to a "bottom's up" process in decision-making and is realized by linking up with existing organizations, and, with the community. There is also the persistent problem of development agencies highly oriented towards Westernized technology instead of exploring and maximizing indigenous resources. Diaz and Nierras(*1986:140-142*)see the need for gathering relevant ethnographic information regarding social, economic and cultural biases existing within and between different communities to comprehend local potentials.

As far as PHC and society are concerned, the critical factor is the political will and resolve to enforce the program. Often, PHC implementation has been marred by suspicions of what it can offer. It has often been associated with "subversive" work. The country's political economy which is impinged upon by Western developed technologies, researches and efficient marketing outlets which swamp local efforts in health technology (both modern and indigenous) is clearly a problem too. To date, drug manufacture is carried out by the private firms which import all basic drugs and raw materials at a cost of P600 million and process them into dosage form (World Bank *1984:53*). World Bank (*1984:53*) further reports that of the 15,000 brand names of drugs on the market very few have therapeutic effects for communicable diseases. Public factories have insufficient production and their manufacture is limited to experimental batches because of quality problems. World Bank also reports that the program to promote indigenous herbal drugs has not progressed past the experimental state.

The Torres study (*1985*), contains the most recent comprehensive study of the performance of the MOH-PHC, delineated additional problems peculiar to the government's implementation of the program. Most of the problems cited here, centers on MOH being largely "community-oriented" in its emphasis rather than being truly resolved in having PHC as "community managed." Hence, the problems detailed in the Torres study concerns the actual processes by which PHC has been implemented. These are:

a. Lack of orientation of Barangay Health Midwives on community organization since health service delivery is given primary emphasis.
b. Lack of involvement of the community in selecting members which will constitute the Primary Health Care Committees (PHCC). The PHCC members are mostly recruited by local officials.
c. Lack of involvement of the community members in planning and implementing PHC activities and least of all, in evaluation.
d. Independent planning for the barangays by sectoral agencies rather than through concerted efforts.
e. Primary attention to health activities inspite of prevalent economic problems.
f. Less emphasis for non-health activities as suggested by the conduct of monitoring for health activities only.

On the part of the PHCs inspired by NGOs, the salient questions/ problems raised are (*Alfiler 1982b:20; Cariño 1986:67-68*):

a. What are the measures to be adopted to enable the PHC communities to veer towards self-management? What are the indicators that may be adopted to determine if communities already have the capability to engage in planning, implementation and evaluation of its activities?
b. Structures for PHC that give priority alone to process may find less time in setting targets or planning its activities so that assessment of accomplishments is difficult to ascertain.
c. Medical practitioners may not be prepared to take a backseat because the problems that are initially confronted are non-health in nature.
d. The tendency to view the community organizers as patroness of resources may unknowingly, impinge on the process of inspiring the emergence of local leadership, thus hampering the road to "community management."

D. *Curative versus Preventive and Other Aspects of Health*

CURATIVE AND PREVENTIVE COMPONENTS. The emphasis on the curative component of health is evident in the updated MOH plan for the year

1986 (See *Demographic Research and Development Foundation 1985:37*). The plan has identified five major programs (otherwise known as the Five Impact Programs) such as: Comprehensive Maternal and Child Health Program, Tuberculosis Control Program, Control of Diarrheal Diseases, Malaria Control Program and Schistosomiasis Control Program. This focus may be attributed to the fact that certain diseases have persisted over time in spite of efforts to prevent and control them. Based on the MOH data for the year 1979-1983 (see *M. Tan 1986:3-6*), communicable diseases remained to be the leading causes of morbidity, mortality and infant mortality. Morbidity patterns have changed minimally in the last decade with the top ten changing only in their ranks. The top ten as of 1979-1983 (from highest to lowest) in incidence are: chronic obstructive pulmonary diseases, diarrheas, influenza, pneumonia, tuberculosis, malaria, dysentery, measles, cancers and whooping cough. There had been a decrease in the incidence of influenza, tuberculosis and whooping cough but had alarming increases for chronic obstructive pulmonary diseases, malaria, dysenteries and cancers.

Mortality for 1979-1983 is also caused by communicable diseases for the most part, although this cause has declined to a third of total deaths vis-a-vis 40 percent in the late 70s. The top ten causes of death are pneumonias, diseases of the heart, tuberculosis, diseases of the vascular system, cancers, diarrheas, accidents, avitaminosis and nutritional deficiencies, measles and chronic obstructive pulmonary diseases. These were also the top ten factors in the last decade but only changed in ranks.

Ascertaining infant mortality rate (IMR) is more difficult, says M. Tan (*1986:6*). Variable figures had been released by the Health Intelligence Service (HIS) and the Planning Division, both of MOH. HIS cited an IMR of 42 per 1,000 live births for 1983 while Planning Division gave 58 for 1985. The top 10 causes of IMR cited for 1979-1983 are: pneumonias, respiratory conditions of the newborn and fetus, diarrheas, congenital anomalies, avitaminosis and other nutritional diseases, birth injury and difficult labor, measles, chronic obstructive pulmonary diseases, acute respiratory infections and meningitis.

The prevalence of communicable diseases despite the fact that six diseases are immunizable (like tuberculosis, diptheria, poliomyelitis, measles, tetanus neonatorum and whooping cough), has several implications. One of them is clearly the need to further increase the immunization coverage and to improve the support structures for the promotion of health and the prevention of diseases (e.g., environmental sanitation, nutrition, child care practices and maternal education) (*Cariño 1986: 37-39*).

An assessment of the budgetary allocation by type of health care shows an increase in emphasis for curative activities in the past twenty years, based on the data prepared by the Financial Management Services, Budget Division of MOH *(1986)*. In 1966,it only got 31 percent of the total

MOH current operating expenditures. By 1976, this increased to 51.6 percent; and at present, it is up to 61.2 percent. The remaining amount is divided among preventive care, research and support services.

However, relying on expenditure patterns alone, may not reveal the total efforts extended to the preventive component of health care. Since PHC was instituted in 1981, the preventive component of health is supposed to be served nationwide through the network of BHWs. While PHC hinges on the mobilization of these voluntary workers to support primary care (which combines both preventive and simple curative responsibilities), the savings that this effort has brought about should also be considered in analyzing expenditure patterns. How much would the efforts of a BHW cost if MOH relied on their services as a regular employee of the organization? Furthermore, there may be other resources (material and human) that could be tapped and can contribute to the overall effort towards the prevention of diseases. Thus, relying on MOH expenditure patterns alone may not signify the mode of financing for PHC activities and may underrate the total thrust for preventive activities *vis-a-vis* the curative.

In addition one also has to contend with the other roles of the BHW which may have nothing to do with health but may be a precondition for attaining a healthy status. These activities need to be monitored in order to understand how they contribute to the well-being of the community. Their impact on health may not be felt during the initial stages of PHC implementation since the process of organizing is a critical factor in planning community activities. Thus, it is important to ascertain the level of implementation of PHC in a community to determine if it is already appropriate to evaluate program results. If it is only in the early process of being mobilized, it may not be reasonable to measure the effect on well-being.

OTHER COMPONENTS OF HEALTH. The rehabilitative component of health care is not reflected in the expenditure patterns of the MOH. This is because rehabilitation is integrated into the objectives of general health services or other service institutions. For example, the 1982 National Health Plan of MOH *(1982: 15)* for Mental Health considers as one of its objectives the training of physicians, psychologists and social workers in order to provide a responsive service for early case finding, treatment, as well as rehabilitation of mental patients. These health workers may also refer mental patients to proper agencies who can better respond to their needs.

The appeal towards enhancing rehabilitative medicine has been brought to public attention when the first National Conference on the Rehabilitation of the Disabled was called by a private foundation in 1974. On this occassion, former Secretary of Health Clemente Gatchalian, tried to correct the impression that rehabilitation is only for orthopedic cases and the mentally retarded. He said that rehabilitation does not only include the deaf and the blind and those with mental defects. It also includes those with heart

diseases, the diabetics, the consumptives, the chronically ill children and the adults past employment stage *(1974: 23)*. He has recognized that the government has not done enough for this sector. The burden had been shouldered by civic agencies for the most part.

In the same conference, five medical professionals and concerned individuals spoke about problems and policy issues on rehabilitation *(Anselmo 1974; Arzaga 1974; Esguerra 1974; Pangalangan 1974; Reyes 1974)*. The recurrent appeal made by these speakers was for government to set up a coordinating body or structure that will unify the approach towards rehabilitation. This body is to respond to medical, social, educational, psychological and vocational rehabilitation. The ultimate objective is to improve the quality of life of the disabled and to enable them to become self-reliant and productive citizens *(Reyes 1974: 104)*. This could be achieved through intersectoral collaboration of the government, the private sector and the affected community. It was further stressed that these efforts should be directed to benefit the "lowest economic strata" in the different regions of the country *(Reyes 1974: 103)*.

In 1974, disability ratio was reported to be 1 to every 10 citizens of the country or a total of 4 million Filipinos *(Reyes 1974: 99)*. Of this total, only 3 percent received rehabilitation and the rest did not. The magnitude of disability has not changed until 1982 *(Periquet 1982: 37)*. In 1982, Periquet *(1982: 44)* claimed that the basic problem of disabled persons is the absence of rehabilitative centers in rural areas. Hence, the disabled person in a barrio or town has to go to a city in his province or another province where there is a rehabilitative center.

A significant effort of the government to respond to rehabilitation need was the creation of the National Commission Concerning Disabled Persons on June 11, 1978. This Commission was mandated to formulate the First National Rehabilitation Plan, to conduct a national disability survey and an inventory of research data and statistics on disability, and to set up a referral system to recommend disabled persons to rehabilitation agencies, employment and other pertinent institutions. The Commission serves as a coordinating authority for all disability related services and programs.

As a result of this directive, a Five Year Development Plan on Disability Prevention and Rehabilitation was formulated for the year 1983-1987 *(Benedicto 1985: 5)*. One important feature of the plan is the idea of building a community-based rehabilitation service for the delivery of primary prevention and rehabilitation services. A pilot project was started in Bacolod (*Periquet 1982*), and subsequently, five more areas in the country (*Benedicto 1985:6*).

In 1984, the National Disability Survey was completed although it had been saddled by a number of methodological problems which hampers one from obtaining an accurate picture of disability *(Rodriguez 1984: 37)*. Hence, more up-to-date information on the nature and problems of disability

is necessary in order to rationally plan the activities, services and institutions that may be set up by government.

Furthermore, there seems to be a need to establish and implement a structure of a referral system to enable the disabled persons reach out the appropriate agencies.

E. *Reliance on WHC, TWC and PHC*

Cariño *(1986)* reviewed six empirical researches *(Cariño and Associates 1982; Jimenez et al. 1986; Lariosa 1982; MOH 1981; Bicol Study of MOH in World Bank 1984; Osteria and Siason 1985; Torres 1985)*, on the utilization of a particular type of health service delivery network for health-related problems. Her conclusion is: "home care particularly by the mother may be the first resort for most ailments" *(Cariño 1986:17)*. Thereafter, traditional, Westernized (or allopathic) or primary health care approach or any combination of these are relied upon. The dependence on a particular health network outside the home may be attributed to a number of factors such as the social class origin of the user; rural, urban or regional residence; the perceived severity of illness; the availability and accessibility of the health services; and, the cost and acceptability of the treatment and the service provider *(Cariño 1986: 21-23)*.

A middle or upper class client is more likely to approach a professional service-provider rather than an indigenous healer. Indigenous service providers (e.g., faith healers) may only be called upon in case of severe illness. The opposite pattern is noted among the lower classes. Severity of illness may mobilize the poor to seek out a private physician in the end after a traditional healer has failed.

A client who resides in an urban area turns to a private clinic, a (government or puericulture) health center, a government hospital, a private hospital and a barangay health station, in that order, after home remedies have been tried out. The rural folk, on the other hand, rely on the BHS first, then the health center, the private clinic and the government/private hospital, in that order of preference.

Another determinant of preference for a type of service is the accessibility of the health network. This means that a potential user depends on a service which is nearby or can be reached by transportation. Another important factor is the quality or characteristics of the providers such as being service-oriented or trustworthy. There is also the economic factor, i.e., the service is inexpensive so it is preferred. Thus, no dominant pattern can be ascertained based on these studies, according to Cariño *(1986)*. No one type of health care is relied upon. Several factors may influence the preference of the user for a type of health care.

A distinct preference for Westernized care will be noted when the material and human resources devoted to it is examined. A scrutiny of the

gross value added in medicine and health in national accounts by Cariño (*1986: 20-21*) shows that this has generally increased from 1971 to 1985. These accounts include the cost of health and medical care in private hospitals and clinics, as well as the production of drugs, medical apparatus and other technology, and the construction of health facilities.

However, there is need for caution in making conclusions about the extent of reliance of the community on PHC over WHC or THC. While Cariño *(1986)* suggests that the best indicator so far is the attendance by a BHW or the BHS of a given client, there could be reservations about this. First of all, the nature of health provided through PHC is often promotive and the application of cures is for simple cases only. More complicated cases need to be referred to secondary or tertiary outlets. Thus far, the outlets that can respond to more complicated cases which are attuned to the community-based approach have not yet been identified. These network may form part of a referral system whose perspectives could be aligned with the goals of the PHC strategy, such as for example, recognizing the utility of indigenous resources like herbal medicines. At present, it is assumed that complicated cases are referred by the MOH-BHW to the appropriate tier of the hospital referral system, which is largely Westernized or allopathic in approach (*M. Tan 1986: 11*). Therefore, it is necessary to train the other tiers of the referral system to the philosophy of PHC so that its approaches could synchronize with those of the BHW. The network that will be trained should be distinguished from the WHC and THC providers to make an effective assessment of how the PHC network has affected the status of the population.

Also, in monitoring reliance on a given type of service provider, it may be necessary to sort out the type of ailments or complaints referred to the service provider. For example, primary care cases may rely on a traditional health care approach. Preferences may differ when one goes to a higher level of ailment.

The indicator for PHC's effectiveness is qualitatively different from THC and WHC approaches. This is because, PHC integrates or weaves the health activities into the relevant socio-economic plans of the community. Hence, indicators for improvement in status can not only rely on the health component. It should be based on the well-being of the entire community.

F. *Focus on Selected Sectors*

There are some selected sectors of the population which have particularly been focused on in the health program of the government: the women and children and the couples about to be married or married. However, there are others which have not been given as much attention, such as those of the work force and the disabled. The latter have been discussed in connection with rehabilitation.

WOMEN AND CHILDREN. In the *Situation Analysis for Women and Children in the Philippines,* Cariño *(1986),* points out that concern for women and children has had a long history. Even during the American period, the maternal and child health (MCH) program was already in the development plan. Cariño laments that in spite of continuing efforts for MCH in post-war Philippines, "such concern has not been translated into direct benefits to these important groups" *(Cariño 1986: 32).*

To date, the concern for women and children constitutes a significant aspect in the MOH Component Plans for 1988-1992 *(MOH:n.d.).* Of the five major impact programs to be implemented in the context of PHC, the ones that have a direct bearing to women and children are two out of five, such as comprehensive maternal and child health (which includes MCH, family planning, nutrition and dental health) and control of diarrheal diseases. The other three impact programs are malaria control, T.B. control and schistosomiasis control.

1. *Comprehensive MCH Program*

The comprehensive MCH program has been instituted in view of the fact that mothers and children constitute about 62 percent of the 1985 population of 54,378,000. Ironically, their health condition still remains to be a problem *("Five Impact Programs" MOH 1986).* Infant mortality rate is 58 per 1,000 live births in 1985 while maternal mortality rate is 0.81 per 1,000 live births. These deaths had been largely attributed to nutritional deficiencies of mothers and children, low percentage of completed dosage of immunization of children and prevalence of communicable diseases. The specific strategies to address these problems include: maternal care, breastfeeding, establishment of under-six clinic, expanded program on immunization and nutrition program. Family planning program is also another strategy but will be considered in a separate section as this is a principal program that targets couples as well. Another program is *hilot* training, which is a support strategy in order to improve the provision of maternal and child care.

a. *Maternal Care*

Maternal care entails the prenatal and postnatal supervision of mothers. Prenatal service includes the identification of "high risk cases" for appropriate referral and obtaining vital care such as monitoring blood pressure and weight, examination/palpation of the abdomen and determination of hemoglobin. Other services include giving advices on the importance of regular check-ups, nutrition and family planning. These services may be extended by health professionals or by trained *hilots.* Postnatal services entail blood pressure check-up, physical examination, referral for

internal examination, advices on diet, breast care, infant care, immunization and family planning.

Based on the MOH National Health Survey (NHS) in 1981, the prenatal services often rendered to at least 82 percent of the mothers are blood pressure taking, physical/abdominal examination and weight taking. Hemoglobin determination is rated the least because of lack of facilities and trained personnel to do it. This report, suggests the extension of such services as family planning; preparation for delivery and lactation; and, services to improve nutritional status and mental health. These are suggested because of problems of birth spacing, breastfeeding practices and lack of preparation for delivery. More skills are also considered necessary to determine high risk factors in pregnancy and labor (*MOH 1981: 49-51*).

Postnatal services include blood pressure monitoring and infant feeding. The lowest percentage for service received is for internal examination. This suggests the need for more health education of the mothers on the importance of this service (*MOH 1981: 52*). It was suggested in the NHS that the nurse or midwife be allowed to perform this function.

b. *Breastfeeding*

The promotion of breastfeeding is now being encouraged as part of the comprehensive MCH program. This includes among others, the provision of rooming-in of newborns after delivery. Breastfeeding is considered to be economical and also protects the children against diarrhea and other diseases. Cariño's *(1986)* situation analysis of rooming-in indicates that much has yet to be done in terms of changing attitudes and institutional practices. It appears that hospitals are averse to the idea of rooming-in because of: (1) the unfounded belief that the infant will be exposed to infections that may be transferred by the mother and (2) the higher cost of maintaining personnel (*Cariño 1986: 28-29*). Then, of course, there is the problem of contending with huge multinational corporations which engage in all sorts of gimmickry to increase the patronage of manufactured infant formula (*M. Tan 1986: 12*). A bill on breastfeeding still awaits passage long after it had been submitted for legislation in October 1984.

c. *Under-Six Clinic*

The Under-Six Clinic is a special type of clinic geared towards providing preventive, promotional and curative services to preschoolers. The special feature of this service is the involvement of mothers in monitoring the growth and nutrition of the 0-6 years old through the use of the growth chart and home based record. The initial impact of this strategy may be gleaned from the fact that 73 percent of the mothers who delivered their children in under-six clinics breastfed their children (*Cariño 1986: 39*).A

problem that has been identified with the implementation of Under-Six Clinics is that mothers still perceive that it is the health workers' task to monitor the children's growth rather than assuming this responsibility as MOH has stipulated.

d. *Immunization*

The prevalence of preventable and curable diseases as causes of morbidity, mortality and infant mortality seems to indicate that immunization still has to be effectively waged to bring about significant results. While an Expanded Program of Immunization has been launched since mid-1976, three (tuberculosis, measles and whooping cough) of the immunizable diseases are still in the top ten leading causes of morbidity; two (tuberculosis and measles) are among ten leading causes of mortality; and, one (measles), among the top ten leading causes of infant mortality. In spite of the gains in the coverage of immunization, high incidence of deaths have increased due to inadequate provision of support activities such as environmental sanitation, nutrition, child care practices and maternal education (*Cariño 1986: 39*).

e. *Nutrition*

The nutrition program is concerned with the improvement of the nutritional status of "vulnerable groups" like the infants, pre-school children, pregnant and lactating mothers. This is to be undertaken through such activities as food assistance and through the referrals of malnourished pre-schoolers to nutrewards or feeding centers.

In a situation analysis of the nutritional status of mothers and children in the Philippines by Florentino et al. *(1986)*, it was noted that malnutrition still plagues infants and young children below four years old and then followed by older pre-schoolers, school children, pregnant and nursing women in that order. Since the 1950s no significant change has taken place in terms of the nature of nutritional problems that afflict these different groups as a whole. These problems that have recurred over time are: protein-energy malnutrition (PEM), iron-deficiency anemia, as well as deficiencies in Vitamin A and iodine. While Florentino *et al.*, note that improvements have been made from 1978 to 1982 in the diets of the children, these are still way below the acceptable standard. Avitaminosis and other nutritional deficiencies had been observed to be included in one of the top ten leading causes of child mortality which may also have caused infectious diseases.

Florentino *et al.* claim that the critical factor that affects malnutrition is not the inadequacy of supply for food but the "low effective demand for food" among those with poor economic resources. He calls to attention the plight

of "nutritionally high-risk groups" which must be given priority like: deep rural barangays, slash-and-burn farmers, small/hired fishermen, the unemployed/underemployed, and those with large families and lowly educated mothers *(Florentino et al. 1986:3)*.

A measure directed at the marco level is to alleviate the critical food supply and demand. At the micro level, Florentino et al., suggest convergence of services upon highly focused and mutually agreed upon targets *(Florentino et al. 1986:3)*.

2. *Control of Diarrheal Disease*

Another impact program that directly affects the young is the control of diarrheal disease. The rationale for prioritizing this program is because diarrheal disease has consistently been one of the leading causes of morbidity and mortality for the last twenty years (*MOH 1986*). It is the second leading cause of death in the 0-4 years age group. In 1984, the mortality rate for this age group was 1.33 per 1,000 population (*MOH 1966*). It was further reported by MOH that 7 out of 10 deaths resulted for this particular age group due to diarrhea.

The chief strategy adopted to control diarrhea is the introduction of Oral Rehydration Therapy (ORT). MOH, however, reports that this indigenous technology has not been widely accepted by some communities, as well as by some doctors themselves. There is still a strong preference for Westernized technology like anti-diarrheals and antibiotics for the treatment of diarrheal diseases. Another factor is the limited access of physicians to the ORT supply of MOH.

TARGETTING COUPLES. Family planning is a particular program that targets the pre-marriage groups and married couples of reproductive age. While the Commission on Population (POPCOM) claims that it targets the pre-schoolers, youth, program influentials and program professionals, the couples are the direct recipients of the benefits that accrue from this program (*Jamias 1985: 100*).

Through the Outreach Project, the population program has deployed about 3,000 personnel and 50,000 barangay service point officers (BSPO) (*Jamias 1985: 11*). This project is a collaborative effort of both POPCOM and the local government. The project has a community-based and clinic-based service delivery system because it has tapped the services of both voluntary workers such as the BSPOs and the regular workers paid by the government.

A state of the art review had been made on the performance of the fertility program by Perez and Cabildon *(1985)*. In their paper, results of 8 surveys had been analyzed to cull general patterns and trends concerning the fertility program. These surveys were: the National Demographic Sur-

veys (NDS) conducted in 1968, 1973 and 1983; Republic of the Philippines Fertility Survey (RPFS) in 1978; the National Acceptors Survey (NAS) in 1976; the 1972 Survey of the then Bureau of Census (now the National Census and Statistics) and the Community Outreach Survey (COS) in 1978 and 1980.

Perez and Cabildon conclude that while there has been a decline in the usage of contraceptive methods by the target groups (the married couples of reproductive age or married women of reproductive age), an increasing reliance on more effective methods had been observed.

Factors associated with contraceptive usage include those related to the socio-economic characteristics of the user, the level of urbanization and extent of modernization of the user's community, and the appropriate knowledge and favorable attitude towards family planning. These variables were positively related with contraceptive use.

Some program variables which positively affected the effectiveness of the program were the accessibility of the family planning clinics and effective performance of the outreach workers and the BSPOs.

The non-outreach project inputs which substantially influenced contraceptive usage was accessibility of medical facilities and barangay health stations.

Non-correlates of program effectiveness were the mass media, the field workers of participating agencies and IEC materials.

A significant finding is that the community-based workers and private doctors who directly communicate with the couples generate better results than those who depended on IEC inputs. Further, between the non-volunteer and the volunteer workers, the latter were more effective in servicing the clients.

On the whole, the paper points out the need to:

1. increase the overall contraceptive prevalence.
2. restructure the system of delivering information materials, particularly the IEC strategies implemented by the service delivery workers.

A more recent study had been undertaken by Varela (*1986*) to determine the role of religious beliefs and fertility control policies of government on the family planning behavior of sample married women of reproductive age. They were drawn from three religious groups: Catholics, Iglesia ni Cristo (INC) and Muslims. Varela's study shows that fertility control policies of government contradict with the religious doctrines of the Catholic and the Muslim groups. Both favor family planning using natural means only. The more liberal group is the INC which does not see any doctrinal impediment in the practice of family planning strategies recommended by government. On the whole, these three different sectors believe that their religious doctrines influence their family planning behavior. That is, the Muslims do not practice family planning as much as the INCs do. The Catholic group also

shares the sentiment of the Muslims but are not as "hard-core" (*Varela 1985: 276*) because the Catholic's response is affected by such factors as place of residence, age and income. More specifically, the urban, the averaged age, and high income Catholic tends to be a contraceptive user than the rural, young and old, and low income counterpart. On the basis of these findings, the policy agenda raised by Varela were:

1. the need to involve the religious groups in formulating fertility control polices;
2. the importance of fitting IEC strategies to the religious beliefs of the different sectors.
3. the need to launch a massive campaign regarding fertility policies to enhance family planning behavior.

An evaluation of the Premarriage Counselling Program (PMCP) which targets couples about to be married reveals the contribution of the program in improving knowledge, attitude and potential practice of family planning (KAP) *(Bautista 1984b)*. Three factors stand out in terms of positively affecting KAP. These are: the clients' socio-demographic characteristics (being educated and female) and the counsellor's effective performance (e.g., being better prepared, disseminated IEC and relied on visual aids during the counselling). The beneficiaries with high educational attainment, those exposed to better prepared counsellors, those who read IEC materials and those who were exposed to more visual aids in PMCP had higher KAP scores.

Some key policy agenda concerns: (1) the possibility of exempting the educated group from PMC or segregating them during PMC sessions so that they will not get bored, (2) the need to step up campaign towards the males who did not perform as well as the females, and (3) the need to make IEC materials more relevant.

To summarize, the general pattern for performing better after the exposure to the family planning program is being economically and culturally more advanced. Then, there is also the administrative components which have to be monitored as they substantially influence the gains that may be achieved in a program.

WORK FORCE. The sector that has not been given much attention and support in our developmental program is the labor force. In spite of the fact that this sector is vital in the production process, government institutions have not given adequate budgetary support and sufficient and well-trained manpower to implement a program to upgrade this sector's health and safety. Hence, participants from government and private sectors in the Seminar-Workshop on Occupational Health and Safety (OHS) sponsored by the U.P. Institute of Public Health and the Federal Republic of Germany issued a statement of concern in 1983 regarding "Occupational Health and Safety in the Philippines". The manifesto decried the problems in the

implementation of OHS programs and standards such as: lack of logistic support; lack of coordination and support among government and private agencies; lack of adequate information/education and training on OHS among health workers, employers, top decision-makers and the general public; inadequate research activities on OHS; low priority given to OHS in small to medium-scale industries and among agricultural workers; and, lack of a continuing and systematic education and training on OHS with emphasis on small and medium-scale industries (*UP-IPH and Federal Republic of Germany 1983: 34*).

The current support systems in OHS are government agencies like MOH, Ministry of Labor and Employment, Bureau of Mines and Geo-Sciences and Fertilizer and Pesticides Authority. They work closely with non-governmental organizations like Safety Organization of the Philippines, Federation of Farmer's Association and Philippine Occupational and Industrial Medical Associations (*Parrado 1983:69*).

Some academic institutions cooperate by conducting research and training in OHS. These major institutions are UP-IPH, and the toxicology section of the Department of Pharmacology of the University of the Philippines - College of Medicine. It was pointed out by Reverente, Jr. *(1985: 28)* that the areas for field research in OHS is very wide. These include the identification of "man-made" hazards peculiar to certain work-related activities. Reverente, Jr. *(1985: 28)* stresses the need to find and adopt treshold limit values (TLVs) which is locally applicable for some chemicals emitted in the production process. These can be the basis for formulating control measures to safeguard the health of the labor sector.

An important development *(Reverente Jr., 1985: 27)* that may help in forging concerns for OHS is the creation of the National Tripartite Council for the Improvement of Working Conditions which initiates, coordinates and implements projects involving OHS. The Council has established the Philippine Foundation for Occupational Health and Safety.

In 1984, a National Tripartite Conference on Improving Working Conditions and Environment was held. The participants of this Conference, composed of workers, employers and government officials discussed the major problems regarding OHS in the Philippines. This is the non-compliance of employers regarding health and safety standards *(MOLE: 1984: 39-40)*. The firms had been able to get away with these violations because of the suspension of routine monitoring. This conference also reiterated the problem of lack of sufficient information and statistics on diseases. The group recommended the courses of action adopted by the 1983 seminar workshop on OHS sponsored by UP-IPH and the Federal Republic of Germany. These were:

1. creation/designation of a national coordinating center for research and training;
2. conducting a sustained, coordinated and effective information

and educational program on occupational health and safety throughout the country;

3. linking up and coordinating OHS activities and services of all sectoral organizations, entities, and individuals concerned;
4. creating greater awareness of OHS standards, rules and regulations and pertinent legislations or decrees in this respect;
5. urging the integration of OHS in the school curricula from elementary to the college level;
6. seeking stricter enforcement of sanctions, existing and prospective, to discourage violations of OHS standards; and,
7. calling upon top decision and policy makers to promulgate clear-cut, consistent policies on OHS for easier compliance by those affected, especially among small and medium scale industries.

Reverente, Jr. *(1985: 29-30)* claims that OHS is presently in the "take-off stage" in the Philippines but "there is a need to bring occupational health to a level of sophistication equal to if not better than that found in industrialized countries."

IV. POLICY PROBLEMS/ISSUES

Based on the previous discussions, this section will highlight some broad policy problems or issues which may constitute the agenda for policy research in the area of structures and interventions for health service delivery.

A. *From a Pluralistic to a Unified Health Program*

The experience of the Philippines with regard to structures and approaches in health service delivery shows the dominant policy of pluralism. There is no unitary structure responsible for extending public health services. Indeed, this approach is commendable because it enables various entities to respond to health problems which government may not be able to cope with. The existence of various service outlets can also be helpful in terms of keeping hospital administrators on their toes in maintaining institutional standards less they be swamped by better institutions.

However, it seems imperative that the national health ministry formulate a unified or comprehensive program for health which takes into consideration the available resources both from the public and private health delivery systems. This, therefore, implies the need for intersectoral collaboration in order to rationally plan the distribution of resources - manpower, technology and health facilities. Intersectoral collaboration may facilitate interaction and exchange of information. Government can, thus, plan out where to locate its resources and not only duplicate the inputs of the private sector.

While the IRP has mandated that the structure for developmental planning of national programs consider intersectoral collaboration in the development councils, these bodies have not fully tapped the participation of the private sector. The PHC approach may have strongly emphasized the importance of public-private sector collaboration, yet, the composition of the different PHC committees is the same as the nutrition committees of the development councils. The nutrition committees are made up mostly of members from the different sectoral agencies who give more priority in implementing their respective program concerns.

Accurate and up-to-date statistics is needed on public-private sector distribution of resources and how these resources match the needs of the population. It is remarkable that some NGOs have already taken the initiative to locate their services in the depressed areas which have not been adequately served by government. This was a step taken by Makapawa, for example.

Responding to the plight of the rural and poor Filipinos remains to be a nagging problem. How to address their needs is still an open issue. Health resources (manpower and facilities) are still predominantly located in barangays near the big town and cities. According to Cariño *(1986:74)*:

> *What is needed is some focused targetting. This means making differentiations among areas according to certain socio-economic and geographic conditions, population size, availability and competence of service providers, community preparedness and disease patterns and draw targets accordingly.*

The recent effort of the current government to involve the private sector in its planning exercise is an important achievement. Similar efforts may be encouraged and must be documented to determine the gains that have been made in the collaborative effort.

B. *PHC as a Strategy*

Primary Health Care (PHC) is an effective approach to generating more lasting and commendable achievements in the health and well-being of those who are involved in it. PHC merits continuing concern and interest on the part of the government, the private sector and the community. Some policy issues that concerns PHC include the following:

PHC OR COMMUNITY BASED? It has been a general observation that PHC as a strategy has not only encouraged the formulation of health activities. In fact, in some areas, non-health activities have taken precedence over the health needs of the populace. In particular, coping with problems of economic self-sufficiency is prevalent and has become the

primordial concern of the community. In fact, some income generating activities have started first even before responding to the problems of health.

One critical issue that can be raised is, how adequately has the BHW responded to the non-health needs of the population? How effective is the BHW in addressing non-health problems? Does the training of the BHW provide appropriate skills to react to non-health problems? Is the BHW able to tap other manpower resources in the neighborhood which form part of the referral system, whether formally or informally? If there is an existing referral system for health, could a similar one also be structured for non-health activities?

Since non-health concerns (particularly economic) are often the priority problems of the community, does it merit implementing instead a **community-based** strategy where health is not the only priority service that is planned to be delivered. Rather, the types of activities to be implemented will be based on the actual problems, needs and demands articulated by the populace?

This thrust means a major restructuring of the entire bureaucracy but if this will make the bureaucracy more responsive, then it may be worth the exercise. Developmental planning should hinge on the expressions of popular will and this will entail making a decision in terms of activities that answer the people's plight which are not only in health.

COMMUNITY-ORIENTED OR COMMUNITY-MANAGED PHC? It seems that the MOH-PHC strategy has not substantially departed from the CD approach which had been launched in the past. This is because, the MOH-PHC has remained to be "community-oriented" rather than being "community-managed." Activities are largely centrally-planned and directed and leave very little room for the BHW to be innovative. In fact, health activities are the ones monitored by MOH and this focus gives the BHWs more reason to emphasize health rather than other activities. The difference between the BHW and the Barangay Development Worker under the CD approach is that the latter is a regular employee of the national ministry. However, the services rendered by both are determined by their respective national offices. In fact, the very rationale for the institution of PHC already suggests that the PHC network is more of an adjunct to the national health ministry's delivery system. PHC is emphasized to augment community's meager resources for health instead of fulfilling the objective of "empowering the community" to enable them to manage their own affairs and therefore, become truly self-reliant.

The question is, how willing are the members of the bureaucracy in delegating substantive responsibilities at the local level? How prepared are the different communities for self-management? What are the necessary components for self-management? Assuming that the community has the capability for self-management, when will the development agency know

how to exit?

BARANGAY HEALTH WORKERS. The BHWs are the critical frontliners in the health service delivery system. They are not only expected to respond to the health needs of the populace but also of the other needs of the community. They are also entrusted with community organizing in order to consolidate the residents' efforts towards planning and if possible, implementing and evaluating the performance of certain activities that they have identified. Hence, the BHW is expected to be versatile in responding to the multiple needs of the population. Some recurrent issues loom, resulting from the BHW's experience with what they can do as against what they should do.

1. *BHW and/or Barangay Development Worker (BDW)*

What seems to be a critical responsibility of the BHW is community organizing if PHC is for "community management" rather than merely "community oriented." From this effort will flow the opportunity for inspiring community members to define what activities need to be pursued and who can implement these activities. If the objective is to make the community "manage" their own affairs, the voluntary worker should not "direct" the needs of the people for health needs only. The BHW is only a facilitator. But the Torres *(1985: 145)* study shows that BHWs were trained extensively for the delivery of health services rather than organizing.

Hence, the question that may be raised is: Do we only need a BHW or a Barangay Development Worker (BDW)? If the BHW can not ably respond to the multiple needs of the population, should the BHW's training be **redirected** to one that prepares him/her as a multi-purpose worker? Or better still, should a Barangay Development Worker be tapped to complement the BHW's responsibilities regarding health care? The BDW will perform a separate function of community organizing while the other sectoral voluntary workers (e.g., the BHW of MOH, the Barangay Nutrition Scholar of the NNC and the Barangay Supply Point Officers of POPCOM form part of the referral system of the BDW. The referral system may constitute both the public and the private sector network and can be consulted for sectorally-linked problems. Then, the other voluntary workers can devote full time attention to their roles for which they are adequately trained than assuming multiple responsibilities.

Re-directing the responsibilities of the BHWs towards multiple roles may not entail broad restructuring of the bureaucratic machinery. This is because the national health ministry can still perform the function of coordinating and providing support structures to enhance the capabilities of the BHW in community organization and trouble-shooting for sectorally-linked problems. On the other hand, assigning a BDW who will perform the sole function of community organization entails a bigger structural modifica-

tion. This may mean, assigning to another ministry (e.g., the Ministry of Local Government) the responsibility of coordinating, supervising, and providing support structures for volunteer community organizers. The issue is: How willing is the top leadership to encourage participatory strategies in the different sectors of the bureaucracy? This is because the aftermath of the efforts of the BDW is expectedly in the direction of greater community awareness and greater community expression of a need for managing their own affairs. The effort of a BDW may bring to a wider scale the notion of participatory management and may require more intense collaboration among the various agencies of government with particular sectoral concerns. Second, collaboration is also necessary between government, the private sector and the community.

2. *Incentives for BHWs*

Another recurrent issue that has been raised concerns how the voluntary workers' efforts can be sustained. In the past PHC efforts, a prevalent problem was the fast turnover of BHWs. Hence, it is important to ask what incentives can be offered to maintain the enthusiasm and the commitment of the BHWs so that the efforts poured into training them will not be wasted. What are the implications of giving remunerations to BHWs?

3. *Concern for Process and Results*

It seems that past efforts of government had given primary attention to the effects or results rather than of the process involved in implementing the PHC strategy. The common indicators pertain to the attainment of a healthy status e.g., morbidity, mortality, availability of potable water, etc. Very little attention is given to the dynamics by which the participatory strategy had been implemented such as: what activities had been inspired by the BHWs to encourage citizen involvement in planning, implementation and evaluation of health and health related activities. What is the quality of citizen participation – its scope, duration and intensity? What factors influence the quality of citizen participation?

Also, as the implementation of the participatory strategy is evaluated, it can also be asked if the participants engage in circumspection to be able to "correct" or make improvements in the process. To what extent have the community members been involved in self-analysis is another significant matter.

4. *Participatory Evaluation*

Of the three activities - planning, implementation and evaluation - participatory evaluation is the least considered of all. The activity that has been most participatory is implementation, then followed by the planning process. Some questions that may be raised are: what are the methods applied to effect participatory evaluation? What is the comparative experi-

ence of the public and the private sectors in participatory evaluation? What lessons can be learned from the efforts of NGOs in participatory evaluation? Is the result of participatory evaluation effectively utilized for a "self-correcting" process in PHC? What are the requirements of participatory evaluation?

WESTERNIZED TO PHC RESOURCES/TECHNOLOGY. In spite of the fact that the MOH-PHC strategy has emphasized the need to adopt or utilize indigenous resources for health, there has been a resistance on the part of some medical professionals to apply indigenous strategies. For example, the application of ORT for diarrheal diseases has been difficult because doctors still prefer manufactured medications. Even citizens themselves seem to prefer packaged medications than herbal medicines *(Torres 1985: 150)*.

Training at all levels seem to be necessary to correct attitudes regarding the value of indigenous resources. Medical professionals whose training have been largely influenced by a Western curriculum put a lot of emphasis on science-based technology. As J. Tan claims *(1986: 11-12)*: "The medical, dental, nursing and midwifery curricula are still Western oriented and primary health care, preventive and promotive health are just given lip service by our health education institutions." To be able to fully effect PHC, medical professionals should be re-trained to appreciate and recognize local resources which may have a scientific basis (e.g., herbal medicines).

The community should also learn from an information campaign regarding the value of indigenous resources for health care. This is of course, difficult to wage because the socio-economic setting which gives premium to imported and Western-developed technology needs to be reeducated to appreciate the value of what is locally available. It may be supportive to PHC technology if control measures are legislated concerning drug companies that rely heavily on imported materials.

Furthermore, the indigenous workers should be retrained so that their services can be tapped and attuned to modes that are scientifically acceptable. The task of the development agency that gives premium to PHC rather than to a Westernized mode of health care is, therefore, onerous. Giving premium to PHC requires:

1. Assessing the local indigenous resources and determining whether they are scientifically acceptable;
2. Disseminating and campaigning for the utilization of "validated' indigenous resources which may be less expensive and more abundant than manufactured/processed resources.

CENTRALIZATION TO DECENTRALIZATION. The political-administrative framework within which PHC operates has to be contended with as the

framework could determine how PHC objectives could be fully realized. It is apparent that PHC as a strategy can only fulfill its thrust under a decentralized structure. This is because PHC hinges on the participation of the community towards developmental planning, implementation and evaluation. A centralized structure may not enable local decisions to be achieved because substantive responsibilities are lodged in the central body or authority. Thus, the matter of granting community residents full opportunities for participation depends upon whether or not decentralization will be put to effect in the governmental machinery. Then of course, care should be made in distinguishing a policy statement from how it is implemented. In the past regime, decentralization had been an overriding theme in the political administrative machinery, but centralist practices had been manifested by the national authorities.

Some policy questions they may be asked are: What decentralized forms or structures are most facilitative of a PHC strategy? How willing is the political leadership to shift to these forms? What is the experience of the autonomous regions (IX and XII) in realizing the PHC strategy as against the rest of the regions?

C. *Curative to Promotive/Preventive/Rehabilitative Medicine*

The recurrence of certain communicable diseases in spite of the fact that these are both curable and preventable seems to point to the need for more substantial attention to promotive and preventive health care. It may be asked to what extent gains had been made to promote health and prevent diseases. Some initial studies had been undertaken to assess the impact of immunization as a strategy to prevent diseases. In spite of increases in the coverage of those immunized, a lot has yet to be done to wage this campaign. What support structures are necessary to maximize the efforts for universal immunization? What improvements had been made in terms of fulfilling the promotive and preventive components of health care? To what extent has PHC as a strategy contributed to the promotion and prevention of diseases?

The rehabilitative component also needs strengthening as an aspect of health care. Much has yet to be done in terms of rationally planning for rehabilitation. No up-to-date statistics is available regarding the magnitude of disability - physical, mental, social and psychological - which will be the bases for formulating a comprehensive development policy for rehabilitation. Also, the disabled group must be willing to participate in this survey so that their needs and problems may be identified. Some initial efforts had been initiated for participatory rehabilitation to complement the rehabilitation network of the government. An assessment of the achievements of these efforts must be understood and disseminated so that others may learn from these experiments.

D. *Focus on Other Sectors*

Women, children and couples constitute the sectors that had been given prominence in the past development plans. With regard to *women,* it has been noted that they perform a critical role in terms of making decisions on the health practices in the family. Women have also been tapped as BHWs. It has been asked whether children (*Torres, 1985*) and the youth can also be involved in these activities? What are the potentials of children and the youth as voluntary workers? Do children and the youth get involved in participatory decisionmaking in PHC?

In targetting couples as a sector to realize the family planning program, women are the ones usually asked about the family planning practices to be adopted or currently adopted in their respective homes. Is this because women are the ones often directly involved in the practice of family planning? What is the role of the male in family planning? In a study assessing the knowledge, attitude and potential practice of family planning after exposure to premarriage counselling, males did not perform as well as the females (*Bautista 1984b*). Is this because males do not have an equal responsibility in family planning and therefore, not as keen to respond to government programs?

There are other sectors that had not been given as much attention like the labor group (and the disabled sectors which were discussed under rehabilitation). The labor sector is the one directly involved in the production process and whose health and safety must be safeguarded. Some gaps in the knowledge concerning this group are: the causes of diseases and illnesses peculiar to a working environment; the ways/strategies in responding to these ailments; the mechanics of promoting, preventing and curing "man-made" ailments; the effectiveness of the existing structures in coordinating and regulating efforts for occupational health and safety; and, the role of the employers in safeguarding the health and safety of the laborers.

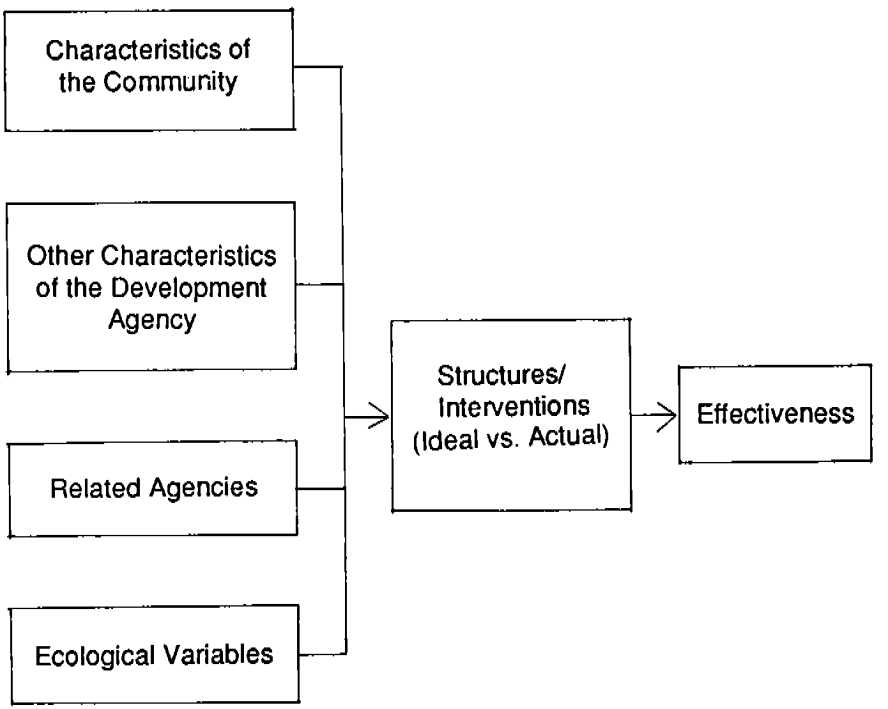
As these different sectors are studies, it may be worth asking: *Has the poor and underprivileged segment been able to obtain an equal share in the benefits from the different programs formulated?* If "health for all" is the motto that guides authorities, health should not only be the prerogative of the rich, urban and educated Filipinos. It should filter to the rest of the populace, particularly the **marginalized** Filipinos.

E. *An Interdisciplinary Model to Assess the Effectiveness of Structures and Interventions*

In analyzing the factors that affect the performance of the different structures and strategies for health, the lesson that may be learned from the readings is that these factors are multiple and complex. Thus, it is necessary to be guided by a model or perspective that considers various factors such

as: those pertaining to the community, other characteristics pertaining to the development agency, those pertaining to the actual mechanics of implementing the structures and strategies, the existence of related agencies that fulfill the same objectives as the development agency, and the ecological context (e.g., its political economy) in which structures/strategies are embedded. This model is presented in Figure 1. Since the components of each factors are varied multiple, an interdisciplinary approach could be helpful in comprehending the subject matter.

FIGURE 1. ASSESSING THE EFFECTIVENESS OF STRUCTURES/ INTERVENTIONS FOR HEALTH



F. *Participatory and Integrated Approaches at All Levels*

The considerable gains obtained in the adoption of the participatory and integrated approaches in the area of health can serve as a challenge to the different sectors of government and the community. What about embracing these strategies in the delivery of services at all levels? These approaches generate self-reliance in the community, are less burdensome to government and bring more lasting results.

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Demand for Health Care

Panfila Ching *

I. INTRODUCTION: NEED, DEMAND AND THE PURPOSE OF DEMAND ANALYSIS

Distinguishing demand from need is a matter of great importance for policymaking. Should society's resources be allocated according to the health needs of its members or according to their demand? To answer this question, the concepts of need and demand must be clear.

Is need greater or lesser than demand? Either case could be the situation in a country. In the same manner, a particular health service could have the same situation. The point is that the levels of needs and demand may not be equal. Certain needs are never translated into demand while certain demands are actually not needed.

Matthew (*1971*) clearly distinguished need from demand:

> *The 'need' for medical care must be distinguished from the 'demand' for care and from the use of services or 'utilization'. A need for medical care exists when an individual has an illness or disability for which there is an effective and acceptable treatment or cure. It can be defined either in terms of the type of illness or disability causing the need or of the treatment or facilities for treatment required to meet it. A demand for care exists when an*

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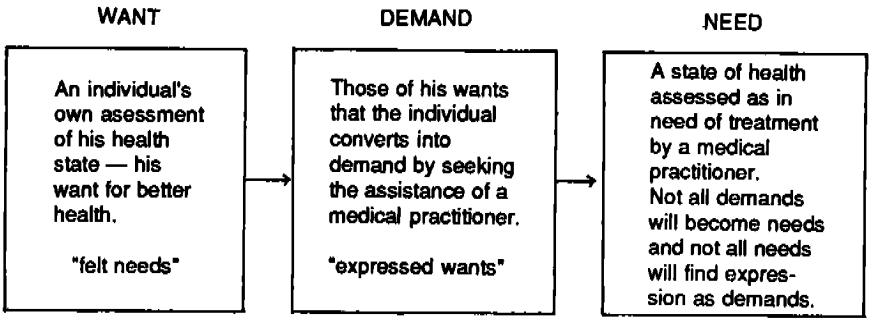
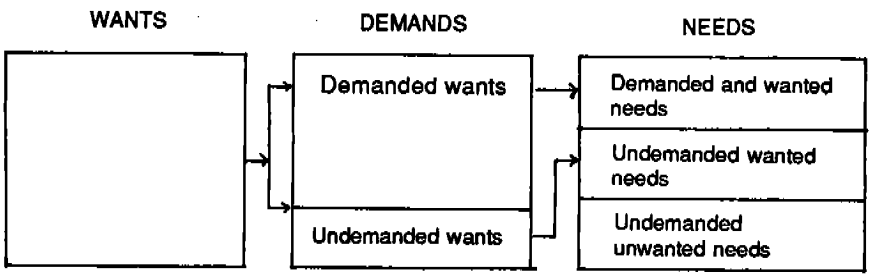
individual considers that he has a need and wishes to receive care. Utilization occurs when an individual actually receives care. Need is not necessarily expressed as demand, and demand is not necessarily followed by utilization, while, on the other hand, there can be demand and utilization without real underlying need for the particular service used.

The relationship between demand and need has been presented by Cooper (*1974*) in the following diagram:



Mooney((*1986*) has come up with a more detailed layout of Cooper's diagram based on the argument that the source of all demand is want, although not all wants are expressed as demand. Some wants and demands are judged as needs, but not all needs are contained in demands or wants. Medical practitioners may define a particular need which is neither want nor demand. Mooney thus views want, demand and need as follows:



All these arguments however point to the need for an efficient resource allocation. Policymakers are interested to know how competing claims on health care ought to be met. Two approaches to these problems have been suggested. One is to leave the market alone, that is, let health care be distributed among competing claims by the willingness and ability to pay a market clearing price. The other is to entrust to the state the responsibility for ensuring that sufficient resources were made available to meet society's *needs* as assessed by medical practitioners.

The second approach is prevalent in developed countries where medical care has been considered a "right". Developing countries, on the other hand, do not even have the luxury of guaranteeing their populations the right not to starve (*Ricardo-Campbell 1982*).

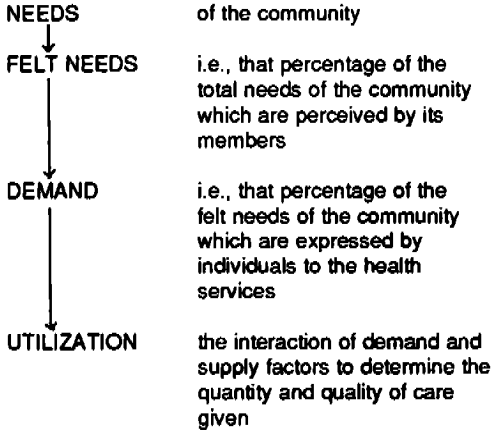
The second approach was based on a misconception of the nature of the need for health care. The concept of sickness as an absolute and unambiguous state led to the false hope that unmet needs could be eliminated. In practice, *need* proved to be a relative concept capable of almost infinite interpretation by both potential patients and medical practitioners. There is no finite allocation of resources that could meet all health care needs. According to Cooper (*1974*):

> *Need seemingly tends to grow in line with provision, as doctors react to any expansion in supply by realigning their conception of need further along the possible continuum... like an iceberg, the more resources devoted to melting it, the more need seems to float to the surface.*

If *need* is likely to result in misallocation of resources, what then should the state do if it does not wish to adopt the first option, that is, leave the market alone? The answer is government planning according to demand.

This is not to say that need should be neglected. Need is actually included in planning according to demand. Need is generated by the incidence of illness, while demand is generated by the incidence of illness (need) and other factors (such as income and price). So, need is only one factor affecting demand for health care. To plan for future utilization of services, demand rather than need must be projected (*Sorkin 1975; P. Feldstein 1979*).

To integrate the discussions so far, it would be helpful to keep in mind the figure of Lee (*1983*):



One purpose of studying demand is to enable planners to bring about a change in utilization if they so desire. This could be done by analyzing the factors behind demand and their extent. Moreover, with separate studies made on these factors, future utilization may be projected more accurately, for various population groups and among areas. Another important reason for demand analysis is the removal of impediments to access to services. For this interest, patient demand must be identified and explained.

For clarity in the discussion, Fuchs' (*1972*) definition of health services is being adopted. He defines health services thus:

1. Labor personnel engaged in medical occupations such as doctors, dentists, nurses and other personnel working directly under their supervision such as practical nurses, receptionists and orderlies.
2. Physical capital: the plant and equipment used by these personnel, for example, hospitals and x-ray machines.
3. Intermediate goods and services: for example, drugs, bandages and purchased laundry services.

II. A SELECTIVE REVIEW OF FOREIGN LITERATURE ON HEALTH CARE

A selective review of studies made on countries other than the Philippines is hereby presented. The focus is on the conceptual models on demand analysis.

A. *Simple Utility-Maximizing Model*

Earlier researches on health service were based on this conventional microeconomic model. The model views the consumer as making a rational choice under a budget constraint, that is, medical care is a product - but not particularly unique - available to the utility-maximizing consumer.

Although many studies did not mention this model, they did use its predictions. While many of these studies start from the specification of a demand equation, such an equation is actually derived from the first order conditions which characterize the utility-maximizing framework. The model predicts a negative own-price effect and a positive impact of income on medical consumption. The work of Andersen and Benham (*1970*) represents one of the earliest researches employing the traditional microeconomic model.

B. *Utility-Maximizing Model with Time Cost*

Using the preceding utility-maximizing structure, Acton (*1975, 1976*)

incorporated time costs into the budget constraint. To consume goods and services, not only money prices but also the amount of time are involved. Time is valued at the wage rate.

Of interest to Acton was the impact of time as insurance or welfare programs drive the money price of medical care to zero. He predicted that demand becomes relatively more sensitive to time as money price falls. Through this prediction, he suggested that compared to users who pay for medical care, users of free medical services will be more sensitive to time costs.

Another prediction is on the unlikely influence of wage and non-wage income on demand. Granting that medical services are normal goods, an increase in non-wage income will lead to an unambiguous increase in demand. The rationale is that people with higher abilities to pay will buy more of all normal goods. However, an increase in wage income cannot be determined *a priori.* An increase in wage income raises not only income but also the value of time. The rise in income will mean increased demand, but the rise in the value of time will mean decreased demand for time-intensive activities. The dominant offsetting forces among these however, cannot be ascertained.

C. *Household Production Model*

In this model, the consumer is assumed to maximize utility over two commodities produced in the home using as inputs market goods and the consumer's time. The innovators of the model are Holtmann and Olsen (*1976*) based on earlier works on Holtmann (*1972*) and Becker (*1965*).

Holtmann and Olsen applied the model to the demand for dental services. The model's distinctive feature is its replacement of the simple notion that consumers derive utility directly from the consumption of dental services with the more plausible assumption that the source of utility is the characteristic produced by these services, dental hygiene. People do not buy goods and services for the pleasure they give. Instead, people are after more fundamental objects of choice, objects which are produced by goods and services, objects called commodities, objects such as dental hygiene.

Holtmann and Olsen gave predictions similar to the preceding models. For example, money price and time are also negatively related to the demand for dental visits.

D. *Human Capital Model*

Taking note of the Mushkin (*1962*) exposition comparing health and education,[1] Grossman (*1972a, 1972b*) extended the household production

(1) Health programs increase the numbers in the working force as well as the quality

theory to develop a model treating the demand for medical services as both an investment and a consumption activity.

Grossman started with the assumption that the commodity consumers wish to purchase is good health, and not medical services. Medical services are demanded only because they are inputs to the production of good health. It is clear therefore that the demand for medical care is derived from the more basic demand for health.

Consumers in the Grossman model have a demand for health for two reasons. First, health is a consumption commodity; it makes the individual feel better. Second, it is an investment commodity; a state of health will determine the amount of time available to a person. Consumers demand good health because a decrease in the number of sick days will determine the amount of time for leisure and work. The return to an investment in health is the monetary value of the decrease in sick days.

The model has the following predictions with respect to wage, education and age. The higher the wage rate, the greater the demand for medical care. This prediction follows from the fact that the higher the person's wage rate, the greater the monetary value of an increase in healthy days. Also, the person who is paid a high wage rate would rather buy more medical services than increase the time he devotes to preventive measures when producing the commodity health. Thus, demand for health care services is hypothesized to be positively related to wage rate.

Education is hypothesized to have a negative effect on the demand for medical care[2]. More highly educated people are expected to be more efficient in producing health, thus purchasing fewer services.

Age and demand for medical services are predicted to be positively related. As a person ages, the rate at which his stock of health depreciates increases. Over the life cycle, people will try to offset the increased rate of depreciation by increasing their use of medical care.

E. *Human Capital Model with Coinsurance*

Newhouse and Phelps (*1974, 1976*) expands the preceding investment model of Grossman by incorporating Phelps' (*1973*) theory of demand for insurance.

Asserting that the theoretically correct money price of health service

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of labor's product. Education chiefly affects the quality of the workers. (2) Units of quality change through human capital formation by health programs cannot be defined as tidily as units of education embodied in the labor force. (3) We have no indexes of differences in earnings reflecting gradations in health. (4) Education investment is a developmental process which ferrets out and encourages native talent. Health programs seek to prevent a hostile environment from killing.

[2] This situation holds if the demand for health investments (or the marginal efficiency of capital schedule) is inelastic with respect to the price of health investments.

is the coinsurance rate times gross price, Phelps and Newhouse have the following results. One is, if the coinsurance rate is low and the time price is high, as in free public clinics, the time price elasticity is relatively high. Another is, if the coinsurance rate is high and the time price is low, as in home visits, the money-price elasticity is relatively high.

Phelps and Newhouse have carefully built a realistic model. However, the model is relevant for developed countries but not for low-income countries where only a small percentage of the population is covered by insurance and where patient cost sharing is not as widespread.

F. *The Inducement Hypothesis*

Traditional economic theory assumes that price and output may be explained by the interaction of **independent** supply and demand. There has been a challenge to this assumption in the market for medical services. The alternative demand-shift or inducement hypothesis states that medical practitioners have the ability to generate demand for their services; or stating it differently, they have the ability to shift the position of the patients' demand curve.

Empirical studies abound with this supplier - induced — also called provider - determined — utilization (*Monsma 1970; Evans 1974; Fuchs 1978; Kohn and White 1976*). To make the empirical works convincing, a number of studies even attempted to formulate a microeconomic theory of consumer and producer behavior compatible with the hypothesis (*Green 1978; Richardson 1981*).

Literature on the inducement hypothesis indicates that doctors do respond to incentives inherent in different payment systems and do influence demand. This behavior is shown to be true whether doctors are concerned with income maximization (Monsma 1970), or with social standing and the esteem with which patients regard them (*Richardson 1981*).

The reason for so much discussion on the influence of providers on consumers is the policy implication of the phenomenon. The introduction of insurance, which acts to reduce the cost of health care to the patient, will lead to increased utilization and thus, pressure on scarce health resources. The appropriate policy then is to launch strategies to affect the behavior of providers, instead of consumers.

Just how, important is the inducement hypothesis? Newhouse (*1981*) cited evidence which shows it is not that important; Fuchs and Newhouse (*1978*) pointed out the difficulty of showing that it exists, let alone establishing its magnitude. But the debate continues.

G. *Demand in Low-Income Countries*

Unlike developed countries, households in low-income countries have

certain characteristics which call the special attention of researchers. For example, the system of sewerage, the cleanliness of drinking water, the state of health knowledge and beliefs are quite different here. These special conditions are accounted by Heller (*1976*), whose model is considered a complicated version of Acton's.

Heller defines health need as an inverse function of health status which in turn is determined by economic as well as environmental factors. A consumer maximizes utility over the consumption of three kinds of goods: preventive health services, discretionary medical care (care beyond the minimum necessary level), and all other goods.

An innovation of Heller is the definition of necessary and discretionary care as two different goods. In so doing, he did not have to resort to an investment model just to incorporate need.

He predicts that demand for preventive services would fall if their money or time price rises, and similarly for discretionary services. However, demand for necessary care may not fall with price increases. Consumption of other goods would be sacrificed in order to be able to purchase the necessary medical services.

III. STUDIES ON PHILIPPINE HEALTH CARE

Demand analyses on Philippine health care have been based on primary date gathered by multidisciplinary household surveys. Rimando (*1976*) utilized a multipurpose survey conducted in the province of Laguna in 1975. Paqueo (*1977*) employed the GINA survey — a 1975 national socioeconomic survey of PREPF (Population, Resources, Environment and the Philippine Future). Akin, Guilkey and Popkin (*1981*) used the 1978 BMS (Bicol Multipurpose Survey), conducted in Bicol, one of the poorest regions of the Philippines. Subsequently, the same Bicol data was utilized by Akin *et al.* (*1985*) and Ching (*1985, 1986*).

The five works mentioned do not have the same unit of analysis. Rimando (*1976*) and Paqueo (*1977*) worked on the household. Akin, Guilkey and Popkin (*1981*) and Akin and his colleagues (*1985*) preferred to study individuals, in particular, children and adults. Although she used the same Bicol data, Ching (*1985, 1986*) investigated the family[3] instead.[4]

These five studies investigated the use of various types of health services and determined the factors associated with use. Their models follow a general demand system wherein the choice or use of a service

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[3] Family is different from household. A household is composed of the members of the family, and also resident domestic servants and other persons who may be living with the family.

[4] Sample size of Rimando is 570; Paqueo used 2902 households; Akin, Guilkey and Popkin had 411 children in need; Akin and colleagues had 401 adults and 566 children; Ching, 379 families.

depends on the relative money and time costs associated with the service, the consumer's income, and a set of control variables (social, demographic and biological).

The results of Rimando suggest that income level, insurance coverage, education and beliefs of mothers, as well as demographic (age) and physiological (felt needs) characteristics of households do have significant impacts on their demand for types of health services. On the other hand, Paqueo found a big effect of residence on demand with rural households being at a disadvantage. The sick children studied by Akin, Guilkey and Popkin were influenced by distance, income level, mother's education and time costs.

Akin *et al.* (*1985*) arrived at an interesting result. Economic variables had so little explanatory power in any of the models. Income, cash and time costs were not important predictors of choice of health service. The implication the authors suggest is that poverty and costs had very little to do with failure to use existing services. Other factors such as education and perceived seriousness of illness played stronger roles in determining use patterns.

Ching (*1985*) also found similar non-significance of economic factors. After dealing with multicollinearity and other econometric problems, Ching (*1986*) obtained a number of significant economic factors, mostly prices. This indicates the interdependence of health facilities, which are organized into a referral system but which at the same time is a competitive network. Nevertheless, the results do not invalidate the findings of Akin *et al.* (*1975*) that poverty and costs had very little to do with failure to use existing facilities and services.

IV. FACTORS AFFECTING DEMAND FOR HEALTH CARE

A. *Income*

Higher income families tend to avail more of health services because they are able to afford the cost. However, since these families are usually able to afford preventive care and could thus be healthier, they can thereby reduce the use of health services. This is the so-called double effect of income.

While the effect of changes in income on the demand for a particular health service cannot be accurately predicted in advance, there is no doubt that expenditure (quantity times price) for health services, as a whole, increases with income. What is less clear is whether the demand for health services is elastic or inelastic, i.e., whether the percentage increase in expenditures is more, or less, than the percentage increase in income. Researchers suggest that the elasticity is below unity (*Andersen and Benham 1970; Paqueo 1977; Rosette and Huang 1973; Feldstein and Severson 1964*).

One should distinguish between wage and non-wage income. Grossman's investment model (*1972a, 1972b*) generated the strong prediction that non-wage income should have no effect on demand. It also determined an unambiguous positive relationship between wage rate and demand for health care.[5] The study of Newhouse and Phelps (*1974, 1976*) empirically supports the investment model. It needs pointing out, however, that although the signs of their elasticities are consistent with the investment model, the absolute values of the elasticities are less than unity.

Under the consumption model,[6] there is a positive relationship between non-wage income and demand for health services.[7] However, the effects of a change in the wage rate cannot be determined *a priori* because of offsetting forces. An increase in wage rate produces an income effect, which acts to increase demand. It also produces a price effect — by raising the opportunity cost of time — which reduces demand for time-intensive activities. Acton (*1975, 1976*) found that the price effect of a wage change dominates in the demand for public care and the income effect dominates

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[5] Under the investment model, the commodity "good health" can be produced by goods and services produced in the market as well as by the time devoted to preventive measures. In this framework, the demand for health care is derived from the more basic demand for health.

Consumers demand "good health" because a decrease in the number of sick days will increase the time available for work and leisure; the returns to an investment in health is the monetary value of the decrease in sick days. Therefore, the higher the wage, the greater the monetary value of an increase in healthy days, thereby intensifying the desire of consumers to invest in health.

When producing the commodity "good health," a consumer who is paid a high wage rate will substitute purchases of health care services for his own time, i.e. he would rather buy more health services (such as consulting a doctor for multi-vitamins) than increase the time he devotes to preventive measures (such as preparing nutritious meals more frequently).

[6] The formal consumption model is developed in terms of a two-good utility function. The two goods that enter the individual's utility function are: health services, h, and a composite good, X. People pay in both money and time for each good. If the proportion of money and the time price per unit of the good remains fixed and the full wealth assumption is used, the objective is to maximize U = U (h, X) subject to

$$(p + wt)\, h + (q + ws)\, X \leq Y = y + wT$$

where

U = utility
p = out-of-pocket money price per unit of health services
t = own-time input per unit of health services consumed
q = money price per unit of X
s = own-time input per unit of X
w = earnings per hour
Y = total (full) income
y = non-wage income
T = total amount of time available for market and own production of goods and services.

[7] The assumptions that are sufficient to make money function as a price in determining demand for health services are also sufficient to mean that an increase in non-wage income, will lead to an increase in the demand for health services. The sufficient assumptions are that the first derivatives of the utility function with respect to a good are positive, that the second derivatives are negative, and that the cross-partial derivatives are positive.

in the demand for private care. He also found a positive relationship between non-wage income and the demand for health services, thus supporting the consumption model. However, although the signs of Acton's elasticities are consistent with the consumption model, the absolute values of the elasticities are less than unity.

Heller (*1976*) found that for West Malaysia, income is not a statistically significant determinant of the total demand for health services. Nevertheless, income strongly increases demand for private modern care relative to public facilities. In the case of sick Filipino children, Akin, Guilkey, and Popkin (*1981*) found that income does not significantly determine the choice of health facility.

Such insignificant findings with respect to income are due to the double effect of income on health care. In low-income countries, it is the double effect of poverty that applies. It directly affects accessibility to health service and indirectly, it affects the disease pattern of a family or a community. Low-income people tend to have a lower use of health service because they cannot afford the cost. However, since these families are usually unable to afford preventive care and would thus be unhealthier, they are more likely to increase their use of health services.

Instead of current income, permanent income is said to be the theoretically appropriate variable. Such a course, however, presents numerous difficulties of measurement. Assets are normally an alternative. Assets accumulated over time yield a high level of wealth. Assets, held in the form of land, bank deposits or animals, enhance the capacity to use health services since they can easily be encashed for medical needs. On the other hand, assets also suggest a healthier household and a lower level of medical need. One can immediately see a double effect of assets similar to that of income. It is not surprising to see hard-to-interpret results with respect to the asset variable.

B. *Price*

A firmly established conclusion about the demand for health services is that the quantity demanded is not very responsive to price changes. In general, price elasticities have been negative but vary widely. The price elasticity for patient days ranges from -0.20 to -0.70; for physician office visits the variation in price elasticity is from -0.05 to -0.20; for hospital admissions the price elasticity is between -0.30 to -0.50 (*Rosenthal 1970; Martin Feldstein 1971; Newhouse and Phelps 1976; Coffey 1983*).[8]

[8] Note that Davis and Russell (1972) estimated price elasticities greater than one. According to Newhouse, Phelps and Marquis (1980), the Davis-Russell result is suspect because the insurance variable is misspecified. The large elasticities are likely an artifact caused by misspecification. The present study discusses the specification of insurance as it is related to the price variable, in the text and in footnote 11.

The Heller study of West Malaysian health services also found that total demand for modern medical care was insensitive to price. Nevertheless, the decision of whether or not to use public facilities was responsive to the price of private care; similarly, the decision of whether or not to use traditional practitioners was sensitive to the price of modern care.

Prices may yield confusing results due to cultural factors. In some cultures, health facilities that do not charge a price are perceived to have low quality services. In Zaire (*Lashman 1975*), for example, mission churches and mobile health teams found that villagers were unreceptive to services which did not cost money. However, after fees were imposed for services, demand increased.

A widely recognized aspect of the price of health care is that it has two components. One is the nominal or money price. The other is time price.

1. *Money Price*

For the nominal component, the relevant and appropriate price is net of insurance benefits[9] and subsidies (*P. Feldstein 1979; Newhouse and Phelps 1976; Newhouse, Phelps and Marquis 1980*).[10] The gross price or charges stated by a health care provider are often not what is paid by the patient. Part or all of the gross price is paid by a third party or by the government on the patient's behalf. Any estimate of price elasticity of demand should be based upon the net or the out-of-pocket price paid by the patient: physician and hospital charges, fee for treatment and drugs, travel cost, and all other out-of-pocket expenses incurred during a visit, less amount paid by third-party payor (insurance benefits) and by the government (subsidized health care).

In the literature, the most common specification of the money price is gross price and a dummy variable that takes the value one if the consumer has any insurance. Such a specification is shown to cause inconsistency in the estimated coefficient of the gross price variable.[11] Whether the inconsistency is toward or away from zero cannot be established *a priori*.

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[9] But includes premium costs.

[10] Newhouse, Phelps and Marquis (1980) believe, though that the theoretically appropriate specification, (given that individuals with deductibles are excluded from the sample), is the marginal price, which is defined as the coinsurance rate times the gross price.

Deductibles are fixed amounts per year which must be spent before the insurance coverage affects the price of health care. Coinsurance refers to fractional payments for care by consumers.

Newhouse and colleagues suggest excluding individuals with deductibles because the theoretically correct price cannot be observed in the presence of deductibles. To include these individuals would produce inconsistent coefficient estimates where the direction of the inconsistency cannot be signed *a priori*. On the other hand, excluding these individuals would generate unknown effects. (In the date used by the authors, the sample selection have negligible effects.)

[11] The specification assumes that all those covered by insurance have the same kind of

Non-monetary factors, such as time price, are expected to assume an increasingly important role in influencing the demand for health care as the out-of-pocket price falls. As net or out-of-pocket price falls, either because of increasing insurance coverage or the availability of subsidized care, demand becomes relatively more sensitive to changes in time price. Moreover, demand for free health services is expected to be more responsive to changes in time prices than demand for non-free sources, since time is a greater proportion of total price at free than at non-free facilities (*Acton 1976*).

2. *Time Price*

Time has an opportunity cost and should be viewed as one of the resource constraints facing the consumer. The time price of a health service is the value of time multiplied by the natural units of time, (e.g., minutes) to obtain care. Time to obtain care refers to travel, waiting and treatment time.

The value of time as an activity is the opportunity cost of time in alternative activities. The value of market time, (i.e., wage rate) is typically used as the opportunity cost although theoretically, this may be incorrect (*Coffey 1983*).[12]

An alternative is to measure time price in natural units only. Acton (*1976*), in a study emphasizing the role of time, found that the bias resulting from the error in measuring the opportunity cost of time is greater than the bias caused by omitting it from the specification. Moreover, if time price is measured as wage rate times time, the resulting time price variable will be

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insurance. Since individuals have different kinds of insurance, this specification involves an error that has a negative covariance with the true co-insurance rate: for insured persons, the error is 1-c where c is the coinsurance rate. (For uninsured people there is no error.) Newhouse, Phelps and Marquis (1980) have shown that this negative covariance between the insurance dummy and the measurement error will, in general, cause the estimated coefficient of the gross price variable, which is used to estimate the price elasticity, to be inconsistent.

[12] The home-production model implies that the value of time equals the wage rate under four assumptions: The individual (1) works in the labor market, (2) is free to choose the number of hours to supply, (3) has no pecuniary utility or disutility for market work and (4) faces no fixed costs of holding a job.

Individuals who are not employed present empirical problems since observations on their wage rates are missing. Researchers devised various techniques of estimating the missing observations. For example, Newhouse and Phelps (1976) used the instrumental variable approach whereby they estimated a wage equation for those in the labor force and used the resulting equation to estimate values of time for those not in the labor force by setting weeks worked equal to zero.

Acton (1976) argued that since the opportunity cost of time had to be imputed to non-working persons and is not entirely precise even for working persons, the wage rate is measured with error. This error will bias the coefficients on the time variables toward zero.

Conceptually, the value of time for a person not in the labor force is the hypothetical wage that would attract him to work and is known in the literature as the reservation wage. Coffey (1983) measured the reservation wage directly by survey questionnaire. Those not in the work force were asked to state the lowest wage per hour it would take for them to accept a job.

highly correlated with wage income. Inclusion of both variables will result in multicollinearity. Thus, the alternative specification where time price is in natural units is favored by an increasing number of researchers (*Heller 1976; Acton 1976*).

Acton (*1976*) found travel-time price elasticities ranging from –0.25 to –0.34 for private care and from –0.60 to –1.00 for public care. As expected, demand for public care is more responsive to changes in travel-time prices than demand for private care.

The effect of waiting time is similar to travel time as a determinant of demand. However, demand for health services are predicted to be more responsive to changes in travel time than to changes in waiting time since travel requires a monetary expense that varies with distance or time, while waiting time does not involve this additional monetary charge. Acton found that the waiting-time price elasticity is –0.05 for private care and is –0.12 for public care. As predicted, the elasticities with respect to waiting time are smaller in absolute value than the elasticities with respect to travel time. However, just as in the case case of travel time, demand for public care is more responsive to changes in waiting time than is demand for private care.

Heller (*1976*) found that it is the relative travel time rather than the relative time requirements for treatment and waiting that proves important in the choice of a public rather than private clinic.

In developing countries where some people can spend hours, if not an entire day, doing non-productive activities, these marginal magnitudes may not be relevant. Therefore, to view time as having an opportunity cost may not be meaningful in such cases. In addition, there can be factors which ameliorate the time lost from other activities. For example, in West Malaysia, waiting time did not impede use of government and private clinics because patients may have viewed waiting time as a chance to socialize (*Heller 1976*). Moreover, patients may perceive a positive relationship between the quality of care received and the time spent in treatment (and hence, the time spent waiting for one's turn). The actual effect of waiting time is thus complicated.

Demand analysis of any one type of health service should include the prices of its substitutes and complements. Certain types of services can substitute for others in the treatment of an illness. An analysis of demand for any one type is incomplete if it omits the substitutability or complementarity of other types. Hence, in any demand equation, one expects to see own-money, cross-money, own-time and cross-time prices.

C. *Health Insurance*

Aside from reducing the net price of health care, insurance may be viewed as a method of financing the demand for health care. It not only reduces the cost of care but also increases the ability of the family to secure

health services. Health insurance is thus expected to raise the utilization and expenditures for health care.

Even if the only available measure of insurance coverage is a dummy (yes/no) variable, this variable should be included in the model because insurance is designed to reduce risk, i.e., increase the stability of the health services consumption stream by reducing the amount of money that must be set aside for emergencies. An income effect is thus felt by people with health insurance. If a shift variable is not included to capture this effect, the coefficient on income will be biased (*Grossman 1970; Akin et al. 1985*).

A nagging problem accompanying health insurance is cost inflation. By lowering the cost of care to patient at the point of delivery, insurance is likely to increase utilization and expenditures for health care and thus, put pressure on scarce resources thereby leading, on the aggregate, to an appreciable rise in costs. Such is the American experience. To combat cost inflation, such items as deductibles and coinsurance, wherein the patient shares part of the expenditures, were introduced. These schemes, which work on the consumer, would lead to reduced utilization in the absence of practitioner influence. The presence of doctor-induced demand and utilization would make these measures weak.

Mounting criticisms on the ineffectiveness of deductibles and coinsurance in cost containment led to the prepayment system, where the insuring agency and providing agency are the same institution. The consumer pays an annual subscription and in return is offered comprehensive care. The providing agency has a financial incentive to limit unnecessary care. Since such systems require considerable capital investment and a large catchment population, an alternative known as a health maintenance organization has been developed. A primary care doctor provides, purchases and supervises all primary care and in return receives a capitation payment for each consumer (instead of each service, as in the fee-for-service scheme commonly practiced in general health insurance systems). The incentive for cost containment in health maintenance organizations comes from two sources: the amalgamation of the insurer and provider functions, and competition for subscribers with conventional insurance agencies and other health maintenance organizations. One potential problem though, when capitation payment is practiced is when the number of people registered tend to be maximized and the services given tend to be minimized. That is why some organizations give salaries instead; but a danger here is that of minimizing activities (*Mills, 1983*). The best system has yet to be carefully studied in the light of provider influence and factors affecting their behavior.

D. *Demographic Factors*

1. *Age Composition*

The incidence of illness varies with age, and thereby, the need for health care. The presence of children and elderly persons in the family will raise the frequency of illness resulting in an increase in the use of health services. Paqueo (*1977*) found the prediction to be true of children 0-5 years old. Wirick and Barlow (*1964*) and Silver (*1972*) found that age is positively correlated with health expenditures.

2. *Sex Composition*

In order to isolate the effect of sex on demand, age, health status and all other factors should be considered in a model specification. However, attempts to do so yields weak results and marginal differences in usage were discovered. Sex is found insignificant in explaining health care demand of Filipino children (*Akin, Guilkey and Popkin 1981*).

Sex discrimination is actually the major underlying reason for expecting differences in health service usage by men and women. In many societies, a low perception of the economic value of women to the household leads to low health service usage by females.

3. *Family Size*

Family size affects use of health services in an unpredictable way. A larger family will have a higher frequency of illness since it has more potential patients. However, a larger family has less income per capita than that of a small family with the same income, and a lower per capita income reduces the family's ability to purchase health services. In addition, a larger family may have enough people at home to care for an individual, thus substituting for additional days of hospital care.

E. *Knowledge and Information*

1. *Education*

A higher level of education may enable a family to recognize the early symptoms of illness, resulting in a greater willingness to seek early treatment. Such a family is likely to spend more for preventive services and less for curative services. Grossman (*1972b*) suggests that education increases efficiency in producing health, such that better educated people are likely to produce health with fewer health care services; consequently, education would have a negative effect on demand. Feldstein and Severson (*1964*) found that medical care expenditures are negatively correlated with education. Silver (*1972*) found that education is negatively correlated with hospital expenses but positively correlated with medicine and doctor expenses. Acton (*1976*) had similar results – education has a negative effect on

hospital outpatient department visits and clinic services while it has a positive effect on private physician visits. These results tend to confirm the hypothesis that better-educated persons spend more for preventive care, resulting in low hospital expenditures but high physician and medicine expenses.

It is the mother's education, in particular, which is crucial because she usually supervises the household. In the Philippines, for example, mother's education was found important in determining whether or not a sick child was taken for treatment. The most educated mothers used private modern practitioners in over 50 percent of the cases while the least educated mothers chose the same type only 25 percent of the time (*Akin, Guilkey and Popkin 1981*).

2. *Health, Knowledge and Beliefs*

The family's state of health knowledge and beliefs affects its efficiency in the production of health through dietary, hygienic and preventive measures. It also affects the choice of a health facility — traditional versus modern.

F. *Health Need*

Demand for health care is based upon felt needs; if no needs are felt, there will be no demand. Doctors assess whether felt needs are actual needs; some turn out to be so, while others do not. The important point is that self-perceived need will determine whether or not an individual is in the market for health care. It is the immediate cause of the decision to seek care. In demand analysis, everyone in the sample by definition believes himself to be ill, or in need. Hence, it makes more sense to measure health need by items such as type of illness or its perceived seriousness. Akin *et al.* (*1985*) found perceived seriousness of illness an overwhelmingly important explanatory variable which cut across all socioeconomic lines and forced both poor and rich alike to act in the same manner, that is, seek private modern care.

G. *Availability of Health Service*

In practice, demand cannot be measured directly and is observed from data that measure rates of utilization resulting from the interplay of demand and supply. As a result, demand analysis takes into account both supply and demand factors. It is ideal then, to control the supply factor in demand by such a measure as the doctor-to-population ratio or hilot-to-population ratio. This is intuitively said to be essential because to some extent in the medical field, supply creates its own demand.

Availability means more than the mere presence of a health service. It refers to the capacity to meet the demand. Thus, the number of services per capita rather than just the number of services is the usual indicator of availability.

H. *Time Allocation of Mother*

Mothers who stay at home to care for children or are able to engage in informal market work at home are expected to have fewer time constraints than mothers who must travel to, and put in hours at, a formal job. Hence, mothers who are constrained by formal work would naturally be driven to private facilities despite the influence of price, income or any of the other factors.

Rimando (*1976*) found lower utilization of health services among working rural Filipino women. Popkin and Solon (*1976*) had similar results.

I. *Location of Residence: Urban or Rural*

While there is greater availability of health services in urban than in rural areas, there also tends to be negative health effects of urban life such as crowding, pollution, exposure to accidents, a high level of tension and the like. It seems that urban residence is a proxy for an assortment of variables.

In a well-specified model that includes explanatory variables such as distance, availability of services, education, health knowledge and beliefs, and employment, the urban variable may be a measure of the efficiency with which household consumption and production are undertaken. In urban areas, time required to perform household chores may be lower and choices wider than in rural areas because of greater specialization and broader markets. In addition, urban may be a proxy for the personality traits of urban migrants. Urban migrants are self-selected individuals who tend to be the healthiest among rural folks and are adaptable to modern medical concepts (*Akin et al.1985*).

J. *Distance of Health Service*

Distance of health services from the family residence measures accessibility. Distance has been the most studied hindrance to health facility use. The more distant a facility is from potential users, the less likely are they to visit it. Akin, Guilkey and Popkin (*1981*) found this to be true of child outpatient visits in the Philippines.

Akin *et al.* (*1985*), however, argues that the preoccupation of planners with distance to health facilities may indicate attention to an inappropriate proxy for true items of interest — travel cost and travel time.

There is a one-to-one relationship among these variables only if everyone uses exactly the same mode of transportation, such as walking at exactly the same speed. Reducing the distance trip time and transportation costs... the economic "distance" to facilities can be reduced by improving roads or providing new forms of transportation.

V. RESEARCH GAPS AND POLICY IMPLICATIONS

A. *Do Doctors Generate Their Own Demand?*

A major application of demand analysis in the health industry is to predict how utilization and cost will change if determinants of demand or supply change. Literature on the Philippines assumes that insurance has an uncomplicated effect on utilization and cost, that is, insurance simply shifts the demand curve in some fashion (*Rimando 1976; Akin 1985; Ching 1985*). Similarly, provider influence is viewed as a plain demand shifter (*Rimando 1976; Ching 1985, 1986*).

With respect to insurance, such a view is plausible since insurance covers only a minor portion of the market. With respect to provider influence, however, future research still has to prove its existence and establish its magnitude — a task considered difficult even for developed-countries research.

The common procedure in the literature studied involves, first, specifying a demand equation from a traditional microeconomic model of a sovereign consumer, then, estimating the equation with some measures of volume of utilized services as the dependent variables. In other words, demand cannot be measured directly but is observed from data that measure rates of use resulting from the interplay of demand and supply. As a result, demand analysis takes into account both supply and demand factors Supply factors in demand function are taken into account by such measures as physician-to-population ratio (*Ching 1985, 1986*) or availability/non-availability of service (*Rimando 1976*). The rationale for this is that doctors generate demand for their services.

The test of inducement boils down to the examination of how quantity or price of medical services varies with the abundance of services. However, finding a positive correlation between resources and either utilization or price does not necessarily show inducement (*Fuchs and Newhouse 1978; Newhouse 1981*). Under the no-inducement hypothesis, more providers in an area tend to lower waiting time which will raise demand. Moreover, simultaneity between supply and demand prevents the acceptance of inducement hypothesis just from the positive association between supply and utilization. One should ascertain whether an area has a higher supply because it has a high demand or vice-versa. This has proved to be a

herculean task.

One could sense an apprehension in accepting the inducement hypothesis because it truly poses a serious challenge to the estimated demand functions reviewed in this paper. Nevertheless, some descriptive studies indicate that doctors do influence demand (*Monsma 1970; Evans 1974; Fuchs 1978*). The existence of inducement calls for a more realistic model of demand where the consumer decides whether or nor to enter the health system, and the doctor determines the treatment.

The reason for so much discussion on the influence of providers on consumers is the policy implication of the phenomenon. The introduction of insurance, which acts to reduce the cost of health to the patient at the point of delivery, will lead to increased utilization and thus, pressure on scarce health resources. The appropriate policy then is to apply strategies to affect the behavior of providers, not consumers. For example, a prepayment system that gives fixed salaries to providers, would be more cost-effective than deductible/coinsurance that works on the consumer side, when provider influence is strong.

As for research implication: if doctors do respond to incentives inherent in different payment systems and do influence demand, then one should all the more study the factors of provider behavior in the face of insurance. Examples of such factors are work hours of the doctor, his income, his patient's income, gross fee and insurance rebate, assuming that his utility is a function of social status, leisure and esteem with which patients regard him. Researchers could try and test, as a first step in the Philippine setting, theoretical models already developed (*Richardson 1981*).

B. *Specification of the Dependent Variable*

A perennially controversial issue concerns the selection of an appropriate dependent variable. Two measures, medical expenditures and quantities of medical services have been commonly used. Both have disadvantages.

Expenditures are inaccurate indicators when price discrimination is practiced by some doctors or when there are variations in the quality of the product itself. Medical expenditures may bias the effects of factors believed to influence demand (price and income), if unadjusted for price changes and quality variations.

The major weakness of using quantities of presumably comparable services is the absence of a common denominator. Quantities of heterogeneous services are difficult to combine and compare. Nevertheless, quantities allow more accurate comparisons of the amount of use of a particular service.

It is evident that expenditures and quantities are indicators of use, not demand. A more appropriate demand measure is the number of episodes

of medical service which is defined as the number of requests for treatment (*Stoddart 1981*).

C. *Specification of the Health Status Variable*

Health status represents health need and thus influences demand for health services. Health status measured by illness experience (as recalled by the respondent) may not fully represent the real health need of a person. Yet, there is no overall health index to measure an individual's health state. Efforts should be directed to increase the comprehensiveness with which health is measured; physical, social, mental and physiological dimensions can be included. For example, Manning, Newhouse and Ware (*1982*) supplemented self-assessed general health perception with measures of limitation of function, psychological state and social activity.

It is worth noting, however, that in demand analysis, everyone in the sample by definition believes himself to be in need. Hence, it makes more sense to measure health need by items such as type of illness or perceived seriousness.

D. *Should Demand Analysis Include People Who are Not in Need?*

One shortcoming of some studies is the failure to describe whether their sample in regression analysis includes only sick people or healthy ones as well. What is the appropriate sample to study?

At this point, it is helpful to recall the processes by which an individual's demand for health care are met in the healthy industry (*Lee 1983*):

Demand for health care is based upon health needs; if no needs are felt, there will be no demand. Doctors assess whether felt needs are actual needs; some turnout to be so, other do not. The important point is self-perceived (or felt) need will determine whether or not an individual is in the market for health care. Ideally, demand analysis should be concerned with a sample of people who feel they are in need and do express this need by

requesting for treatment. This reasoning is the argument of Akin *et al.* (*1985*) for wanting to study sick people only hence:

> *In examining the use of medical services, the point of interest is not what the whole population does, but what sick people do. Hospitals, clinics, and medical schools are not constructed to care for the healthy. Questions of policy, which revolve around costs of welfare programs and why people use specific types of services, are questions of demand that cannot be answered by referring to health capital formation. People who do not consider themselves sick generally have no demand for medical services; they are therefore irrelevant to the problem. If thought about in this manner, the issue of demand for medical services appears to be much simpler than any of the analysts have assumed.*

Perhaps, what worries some analysts is the healthy who do demand care, in particular, preventive care. The appropriate sample here would still be people who feel and express need (though they are not sick). Need could actually embody curative and preventive concepts. Need has been defined (*Culyer 1978*) to exist when (1) the potential for **avoidance** of reductions in health status exists (prevention and some care); and (b) the potential for **improvements** in health status above the level it would otherwise be exists (cure and some care). If the appropriate sample in demand for preventive care are the people who perceive they are in need, but not sick, then a demand analysis on preventive care, separate from curative care is called for. Nevertheless, the point that the appropriate sample is people who feel in need and do express it, remains.

The preceding statement may not sound moral to some planners who think persons actually in need, but do not express it (and may or may not feel in need), should receive care. The market structure for health simply cannot accommodate such people because the structure only allows for people who felt and expressed their needs.

The purpose of this section is to encourage future research to do more adequate descriptions of their empirical work, and not to worry about a seemingly limited sample[13] — people who report themselves as sick — when studying demand for medical services. However, if one is studying the production of health, an entirely different problem is at hand which requires a sample of both sick and healthy people.

E. *Price, Non-Users and Data Problems*

Estimation of health care price leaves much to be desired. Nowhere

[13] Usually due to data limitations arising from the survey questionnaire itself.

can one find observations on price the way economists define it, which is on a per-unit basis and is exogenous to the household. The usual practice is to approximate prices with expenditures. A problem occurs for non-users: there is no corresponding price (expenditure) observation for them. A widely used procedure is to impute expenditures for non-users on the basis of the average expenditures of users. Such procedure casts doubt on the interpretation of the price coefficient.

The price specification closest to the correct one would be a facility-reported cost or usual fee paid for a visit. One has to undertake his own survey for this, however, if not contained in multipurpose surveys. Data from social experiments (such as the Health Insurance Study of Rand Corporation) have been quite helpful in studying insurance and demand for services in developed countries. It would be a welcome move to undertake similar experiments in the Philippines for the purpose of enhancing its health data base.

Another problem directly dependent upon the sample of observations is multicollinearity.[14] Take for example hygienic sewerage and health status, which are often seen as determinants of demand in low-income countries. These factors are often correlated. The existence of a hygienic sewerage system affects the condition of sickness or health which in turn determines demand. However, if the sample of observations involves sick people only, then one can drop hygienic sewerage because there is no *a priori* reason to expect that sewerage affects the choice of practitioner's or number of visits made once the individual gets sick. Consequently, a hygienic sewerage variable is not appropriate in a system of demand equation which are estimated using a sample of sick people. Health status, which may be measured by type or frequency of illness remains.

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[14] The easiest way to detect multicollinearity is to examine the standard errors of the coefficients. If several coefficients have high standard errors and dropping one or more variables from the equation lowers the standard errors of remaining variables, multicollinearity is most likely present.

One's judgment should be used when deciding whether or not to drop an explanatory variable because the gain in the reduction in standard error of remaining variables, when the variable is dropped, must be traded off against the possible introduction of bias due to mis-specification of the equation.

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Health Financing In The Philippines: A Review of The Literature

*Ma. Concepcion P. Alfiler**

I. INTRODUCTION

With the setting of an international goal of "Health for all by the year 2000", member states of the World Health Organization (WHO) committed themselves to the task of making all citizens of the world, by the turn of the century, attain a "level of health that will permit them to lead socially and economically productive lives" (*Mach and Abel-Smith 1983 p. 10*).

To realize this objective, a Global Strategy was mapped out wherein it is specified that concerted efforts must be exerted to include, among others, the generation and mobilization of financial and material resources (*Mach and Abel-Smith 1983 p. 10*). This provision provides the basis for a more systematic attempt to match needs, resources and available finances that can support national health programs in all sectors. The Global Strategy places the responsibility for ensuring the efficient use of resources and the generation of additional resources, where necessary, on the ministries of health of the member states of the World Health Organization (WHO).

The enunciation of sound health financing policies to govern and guarantee the efficient and effective utilization of scarce resources for health needs requires the maintenance of an information system for the health sector. To meet these information needs, ministries of health are tasked with a variety of concerns, which may include, among others:

1) Estimation of the order of magnitude of the total financial needs to implement the national strategy up to the year 2000;

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2) Procurement of additional national funds for the strategy if necessary and if convinced that existing funds have been used wisely;
3) Consideration of alternative ways of financing the health system, including possible use of social security funds; and
4) Provision to their respective governments of a master plan for the use of all financial and material resources, including government direct and indirect financing; social security and health insurance schemes; local community solutions in terms of energy, labour, materials and cash; individual payments for service; and the use of external loans and grants (*Mach and Abel-Smith 1983, pp. 67-68*).

II. OBJECTIVES

This paper attempts to review the literature and information sources on health financing in the Philippines. Two main objectives are hoped to be achieved in doing this: a) determination of how much is known and written on the subject, and b) on this basis, provision of a starting point for health policy makers in evolving a research program that will address the gaps indicated by the review and the priority needs of health administrators and planners.

Three more sections follow this portion. Section III discusses conceptual and methodological issues which have been raised with regard to problems of health care financing in developing countries.

Section IV focuses attention on Philippine materials on health financing and related topics. Originally, the topics covered in this section were intended to serve as organizing themes for the presentation of the materials done on the Philippine situation. This is one way of checking the extent by which the thrusts of Philippine materials approximate the concerns of those in the literature in general. The spotty and fragmentary character of the local materials, however, made this task difficult so that instead, local materials were simply organized around four major themes: "sector-wide studies", "private-public resources", "national health insurance" and "community/ primary health care financing."

The fifth and final section assesses the state of health financing research in the Philippines and shows its implications for future health research priorities.

This paper, however, cannot lay claim to being an exhaustive study of all local materials on health care financing despite the deliberate effort to ensure a systematic search for secondary materials through the use of existing bibliographies and research listing, particularly the Philippine

Council for Health Research and Development's (PCHRD) yearly inventory of ongoing and completed research studies on health services. While no definite time frame was set for the selection of the materials reviewed, priority was given to those published or completed fairly recently, e.g., during the late seventies and early eighties.

Aside from the U.P. College of Public Administration and the Local Government Center libraries, other library units of the University of the Philippines (U.P.) system were also visited. These include the School of Economics, Institute of Public Health and the College of Medicine libraries. Outside of the U.P. system, materials were also gathered from the World Health Organization (WHO) and the Asian Development Bank (ADB). The sets of Ministry of Health (MOH) and National Economic and Development Authority (NEDA) materials which have been accumulated by the faculty and staff of the College of Public Administration in the course of their research work on health administration have also been useful for this review. Special mention must likewise be made of colleagues and friends who graciously agreed to share health financing materials from their personal collections. These include Dr. Ledivina Cariño and Dr. Victoria Bautista of the U.P. College of Public Administration, Dr. Loreto Cabanos of NEDA, Ms. Bituin Gonzales of UNICEF, Dr. Dodong Capul of USAID, and Dr. Alejandro Herrin of the U.P. School of Economics.

Interviews were conducted with officials of the Ministry of Health, NEDA, Intercare, and the Securities and Exchange Commission.

III. HEALTH FINANCING: CONCEPTUAL AND METHODOLOGICAL ISSUES

The growing literature on health financing highlights a recurring and still unresolved issue on how "health services" can be defined and delimited. Researchers on the topic are confronted with computational difficulties caused by the lack of an accepted accounting framework which can facilitate financial analysis of health revenues and expenditures and minimize possibilities of double counting.

Raising revenues is only one side of the question, the other being the spending component. Systematic description, analysis and assessment of the flow of funds/resources for health services necessitate a determination of its relation to the manner and basis of allocation/utilization of these funds for specific services directed to particular areas or to certain segments of the population. Closely related to this is the estimation of the underlying unit costs of health services rendered, whether in private or public settings. Given the financing sources and expenditure patterns, unit cost per service is a critical input in establishing the efficiency or effectiveness of the institutions rendering health services.

Aside from these definitional issues, the other themes of the literature involve: a) financing sources and their relative advantages/disadvantages; b) evaluative concepts for assessing financing schemes; and 3) methodological difficulties inherent in undertaking cost-benefit and cost effectiveness analysis for health expenditures.

DEFINING/DELIMITING THE HEALTH SECTOR. Financing is generally understood as the raising of resources/funds to support or pay for goods and services. Among the goods which an individual or a government may decide to pay for is health services. In this sense, health care is a "commodity, comparable to other goods and services in that individual households and many public and private organizations are willing to pay for out of their incomes and revenues" (*Zschock 1979, p.5*). As with most other economic goods, the production of health services has its costs since goods and manpower are expended in the provision of these health services. These resources, goods and manpower costs must be valued if one is to determine resources necessary to finance the production of health services.

A basic prerequisite in the estimation of the costs of these services is the definition of the nature of the good and the process of producing it. The prevailing definition of what constitutes health does not lend to an easy decision on how health services may be costed. The World Health Organization defines health as a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (*cited in Straetz, Lieberman, Sardell 1981, p. 4*). The broad implications of what is necessary to achieve this state of well-being, given varying environmental conditions, are indicative of the difficulty of delimiting the parameters of what constitutes the health sector.

In his pioneering study of health expenditures in six countries, Abel-Smith (*1963*) delimited the broad spectrum of what constituted health services by dividing it into three principal sections: medical care services, public health services, and research and teaching. Two types of services fall under medical care. These include those provided by hospitals and those not provided by hospitals. Public health services, on the other hand, is composed of public health services to persons, environmental services and other services. Personal health care describes the sum of medical care and the subsection of public health services devoted to persons.

Medical care is further defined as referring to services which are primarily of a diagnostic or curative character while public health services refer to those of a promotional or preventive character. Under public health services, distinction is further made between services provided to individuals who can be identified (personal services) and activities which benefit the community in general (environmental services). The category "others" cover laboratory and statistical services which do not fit into either category (*Abel-Smith 1963, p. 36*).

Fifteen years later, another work on the topic observed that "a complete definition of the health sector would encompass all the services rendered by health practitioners and the institutions through which these services are administered. This includes medical doctors, nurses, paramedical personnel, dentists, pharmacists, preventive health care workers, administrative and other support personnel and all the goods and services they provide through health care institutions such as hospitals, clinics and pharmacies and through preventive health care programs" (*Zschock 1979, pp. 6-7*).

A WHO manual for planning health financing in developing countries dichotomized health services into two component parts: personal health services and health related activities. Personal health services are those aimed at improving the health of identifiable persons while related activities are those which promote the health of the population collectively *(Mach and Abel-Smith 1983, p. 15*).

The three operational definitions offered above suggest that while most definitions are usually comprehensive in scope, setting the boundaries of the health sector may vary depending on what dimensions of health services may be stressed.

Zschock contends that depending on the objective of the financial analysis to be made, a "narrow" or broad definition of the sector may be adopted. A narrow definition may be preferred if the intention is to argue the need for more financial assistance to the principal health sector institutions. On the other hand, a broader definition, i.e. one which will include a number of health related activities in other sectors, would be functional if the purpose is to increase coordination of health care provided through the principal health sector institutions with health related activities carried out through other organizations (*Zschock 1979, p. 7*).

It has been noted, however, that although the data base in developing countries tends to be more limited, the definition of the health sector adopted in these countries is generally broader primarily because of the "greater deficiencies in environmental health care prevalent in developing countries and the extensive use of traditional care practitioners by the population for curative care" (*Zschock 1979, p. 7*).

It can then be inferred that the matter of how the health sector of a country will be defined for purposes of undertaking a financial analysis of the revenues and expenditures of such a sector could be an arbitrary convention, depending on what is feasible considering prevailing administrative conditions and data availability.

FINANCING SOURCES. At the heart of any health financing study is the identification of actual and potential fund sources to support the activities of the health sector. The sources of funds directly determine the volume available, the regularity with which funds are remitted, collection costs and

the stability and continuity of sources through which services are financed.

Sources of funds may be categorized on the basis of: a) service fee at the time of use (indirectly financed) and services for full payment (directly financed) (*Abel-Smith 1963, pp. 18-19/ Abel-Smith 1978, p. 73*); b) public and private sources (*Zschock 1979, pp. 19, 33*); and c) agency or body that originally provided the funds (*Mach and Abel-Smith 1983, pp. 18-19*).

Arguing for the value of tracing funds directly to their ultimate origin or source, Abel-Smith made a distinction between funds made available to health services through indirect payment and funds which persons pay directly to the provider in return for goods and services received. Under this scheme, indirect payment includes: a) general government funds; b) compulsory insurance funds; c) voluntary insurance funds; d) employment insurance; e) charitable donations; and f) foreign aid. Direct payment, on the other hand, covers "payments by recipient in return for services excluding insurance payment to compulsory and voluntary insurance funds."

Zschock's categorization scheme puts premium on public and private sources of funds. General tax revenues, deficit financing (domestic or international borrowing), sales tax revenues, social insurance and income from lotteries and betting fall under the first category. Private funding sources would include direct employer financing, private health insurance, charitable contributions, direct household expenditure and communal self-help (*Zschock 1979, pp. 20, 27*).

A third classification departs from Zschock's scheme in that aside from private and public sources, it also considers external cooperation as a distinct category by itself. Under this third scheme, four sources are considered public: Ministry of Health, other government departments, regional and local governments, and compulsory health insurance.

Private sources refer to private health insurance, private employers, local donation (cash), and private household's donated labour. External cooperation includes official or non-official assistance from outside the country. (*Mach and Abel-Smith 1983, pp. 18-19*).

The methods by which health services are financed have important implications which policymakers must take note of. Abel-Smith cites two reasons for this:

> *First, it is important to examine what different groups of the population are ultimately paying towards the cost of health services and how this compares with the value of the services they receive. Second, the method of financing can itself have major effects on what is provided and to whom it is provided. Of special importance for the planning of health services is who ultimately controls the spending (the government, social security funds, insurance companies, profit or non-profit hospitals or other bodies) and how that control is exercised. Financial incen-*

> *tives can influence the orientation of the services (for example the orientation given to prevention as against the cure), the setting where care is provided (in patient, ambulatory or domiciliary), the level of technology used, the quality of care provided, the geographic distribution of health resources and last but by no means least, the cost of providing the services (Abel-Smith 1963, p. 74).*

The manner through which funds/resources are raised is indicative of the extent to which they provide regular and substantial amounts for health. Thus, funding coming from general tax revenues may be unreliable because of the uncertainty between budgetary funds and actual disbursement. Allocation of these sources is also likely to be influenced by political processes which may conflict with efficiency and equity considerations (*Zschock 1978, p. 21*).

Deficit financing has the advantage of being able to expand health care over a shorter period of time. The problem with this kind of source is that expanded health infrastructure made possible by loans may also increase the operating expenditure obligations that must be financed from internal resources:

General sales taxes may be difficult to administer, politically unacceptable and even regressive.

Funds from social insurance, on the other hand, may reinforce the tendency to support hospital-based, doctor-centered programs that are oriented towards curative health care.

Among private sources, private health insurance which spreads the financial risk of illness reduces the private costs of health services but may tend to be expensive. Charitable contributions may lead to donors' priorities, not coinciding with the pressing health needs of the population. Besides, these donors may prefer physical facilities and equipment as visible evidence of their donations, leaving other sources to provide for the operating budget necessary to run them. Aid from foreign bilateral or multilateral organizations is usually extended in time of natural disasters. A disadvantage of this source of financing is that it may create dependence on foreign health care technology and materials which developing countries may not be able to support on their own once foreign assistance is no longer available (*Zschock 1979, p. 30*).

The amount of resources generated by direct household expenditures, which covers direct payment to health professionals who provide services, is affected by the premium of insurance coverage. Households with lower income or those without insurance will spend only if the need is already quite serious. Publicly-supported health services are still the major means of making services available to these households.

The almost universal adoption of primary health care as an approach

to the delivery of health services has shifted attention to communities as another source of financing for local health services. Through community self-help efforts, donations in kind such as community labour and cash donations may add up to a substantial amount at the aggregative level. Zschock, however, sees community-raised resources/funds as supplementary to, rather than as substitutes for, other sources with which it must be coordinated (*Zschock 1979, pp. 32-33*).

On the whole, the value of the sources of health finances may be evaluated through the use of five criteria, namely: 1) efficiency; 2) equity; 3) displacement effects; 4) impact on health care utilization; and 5) impact on health care provisions (*Zschock 1979, p. 42*).

A source is considered efficient if it offers a higher net yield for health care delivery operations, if it is a reliable or stable source of financing, and if it affords management freedom and flexibility in the use of these funds.

It is equitable if it allows the sharing of risks of illness across population (vertical equity) and if the burden of financial support is distributed according to ability to pay (horizontal equity).

Funding sources should also be evaluated in terms of whether its adoption will cause the displacement of more equitable sources or the utilization of health care as well as its effects on health care provision (*Zschock 1979, pp. 43-49*).

ASSESSING HEALTH CARE FINANCING SCHEMES. Should assessment of the national financing scheme be confined to the merits of each of the individual sources alone? Since there are varying effects of the different sources, the overall effect of all financing sources must be described and analyzed in order to determine: a) the level of health care support that may be justified, and b) the appropriateness of these sources to generate the required amount.

Five analytical models are normally used to justify the level of health care support that must be attained in a country, namely: 1) international comparisons of the levels of resources allocated to health; 2) cost-benefit analysis; 3) cost-effectiveness analysis; 4) consumer demand for health care; and 5) minimal need for health services (*Zschock 1979, pp. 35-41*).

In his discussion of each of these analytical models, Zschock argued against the use of international comparisons as a way of setting standards on how much a country must spend for health. Differences in exchange rate levels of monetary units in different countries and in their economy's valuation of health services within their domestic market context makes international comparison untenable.

The value of benefits that investment in health services will generate is seen as a more rationale basis for explaining how a country should spend on health. The difficulty, however, of translating benefits derived from health into clear monetary values vitiate against using the cost-benefit approach as

a justification for more resources to be poured into health.

Another approach which is often offered as an alternative to cost-benefit analysis is cost-effectiveness. Instead of calculating benefits, effectiveness may be measured in terms of improvement in reaching specific targets of the population, or in better health care delivery. These improvements may then be related to the costs of providing these services. The problem with this concept, however, is that one is never able to isolate which effects may be attributable to health care services alone. Thus, effects of health expenditures which are likely to interact with other social services may not also lend to direct measurement.

The conceptual strengths of cost-benefit and cost-effectiveness approaches are therefore negated by methodological difficulties encountered when computation of aggregate benefits or effects are attempted. In view of these limitations, Zschock proposes the use of consumer demand and the determination of minimal need for health as bases for explaining how much should be allocated for the section (*Zschock 1979, pp. 9-41*).

Consumer demand for health reflected in households and business preferences are thought to be influenced strongly by the provider of health care or by the availability of insurance coverage. Citing fragmentary evidence from a household survey and analysis of drug sales, Zschock infers that household expenditures on health retain some level of autonomy and may be used as a basis for deciding how much to spend on the health sector.

Contrasting demand with need which may not be reflected as effective demand if not backed up by the capacity to pay for the services, Zschock stressed the value of considering the unmet minimal health care needs of large sectors of the population as a way of justifying the allocation of more resources for the health sector. A minimal need estimate which includes curative and preventive services may be transformed into a basis for mobilizing resources in such a way that health resources are reallocated from persons who receive more than what they need to those who have less than what they need (*Zschock 1979, p. 41*).

METHODOLOGICAL ISSUES. Health financing scholars must continually grapple with methodological dilemmas stemming from two sources: a) the absence of a standard accounting framework which will provide them with the handles they need in dealing with health expenses of various sectors; and 2) the difficulty of measuring effects and benefits of health sector services which could lead to a better estimation of the impact of resources allocated to this sector.

To deal with these problems, particularly the first, health financing planning manuals for developing countries have been prepared to assist health officials in these countries in setting up a system for the collection of health finance and expenditure date over time. One such manual (*E.P. Mach and Abel-Smith 1983*) emphasizes three principles for researchers working

from existing information and accounting systems:

a. Ensure that all major items of finance and expenditures are included;
b. Use figures for expenditure actually incurred rather than finance budgeted (which may not have been allocated or, if allocated, not spent);
c. Avoid double counting of money transferred from one source of finance to another before it is spent, which thus appears in more than one account. *(E.P. Mach and Abel-Smith 1983,* p. *39*).

Paying particular attention to the assessment of financial viability of World Bank funded projects, De Ferranti recommends that an "affordability analysis" be made for health projects to determine whether those who are expected to commit resources to the project are able and willing to do so. Essentially, this means estimating for the following aspects of the institutions or groups involved:

a) the costs they would bear as a result of the project or program;
b) funds (or other relevant resources such as volunteer laborers) available to them; and
c) other demands on these resources for other projects or programs.

Figures arrived at from these estimations can then be projected over time to determine whether sufficient funds will be available.

If not, then the amount of the shortfall vis-a-vis the requirement and total resources may be determined *(De Ferranti 1983, p. 53).*

IV. HEALTH FINANCING IN THE PHILIPPINES

The literature on health financing has consistently stressed the need for a comprehensive sector-wide perspective in evaluating the different ways of utilizing funds to support health activities. The connotation of such a broad view of the sector is aptly captured by a leading proponent of the idea, to wit:

> *Estimates of all sources providing means for health activities and of total expenditures in the health sector are essential information for those responsible for a country's health policies. Only if a country plans the whole of its health services - public and private - will plans have a prospect of success ... It is proposed that health policy makers should go beyond the conventional limits of public health and attempt to match the financing of the total sector with major health goals (E.P. Mach 1978, p. 7).*

Realizing the value of this holistic perspective, this review will proceed by focusing first on studies which attempt to examine comprehensively the financing needs of the Philippine health sector. Priority is given to this type of studies as they typify the kind of comprehensive thinking expected of planners who must formulate rationale health policies. These kind of works are referred to as "sector-wide studies". From the data and analysis given in these studies, an attempt to highlight some dimensions of the financing/ expenditure profile of the Philippine health sector is made.

Other Philippine materials covered in this review shall also be discussed by clustering them into the following topics: a) public/private resources; b) national health insurance; and c) community/primary health care financing and "demand studies".

SECTOR-WIDE STUDIES. Aside from an ongoing Asian Development Bank (ADB) commissioned study on health financing in the Philippines (which is expected to be completed by February 1987), there appears to be no empirical research which dwell solely on the financing of the public and private health sectors of the country. Instead, the review shows that the financing aspects may be discussed as one of the sub-topics in an evaluation of the performance and resource needs of this sector. It is more of the latter type of studies that are considered as "sector-wide studies."

Under this category, three documents prepared by two institutions - the World Bank and NEDA - are discussed. They describe and analyze how revenues for health services are raised and allocated for certain objects of expenditures over a particular period of time.

The 1984 World Bank review of the population, health and nutrition sectors has three chapters on expenditure trends, program financing and external and alternative financing for these three sectors (*World Bank 1984, pp. 79-85*). The 1985 NEDA proposed program for improved health care delivery system, on the other hand, devotes a substantial portion to the sector's financial needs and offered proposals aimed at developing self-reliance among individuals in financing their health requirements, thereby "freeing" government funds for utilization in the needs of indigent groups (*NEDA 1985 b*).

Another NEDA publication (*NEDA 1982 a*) analyzes, among others, trends in government, family and personal consumption patterns on health services for the decade of the seventies, using core indicators to assess program impact, program indicators to determine adequacy of program compared to ascertained needs and access indicators to show service utilization and the physical or financial accessibility of the Ministry of Health (MOH) services. It is interesting to note, though, that the sector definition of these works differs. While the World Bank review covers the health, population and nutrition sectors, the 1982 NEDA document discusses health and nutrition and the 1985 NEDA proposal is specific to the health

sector alone.

The above documents reveal the following about the financing and expenditure patterns of the Philippine health sector:

1. Health expenditures, as a percentage of total national government expenditures decreased from 4.9 percent in 1970 to 3.5 percent in 1980 (*NEDA 1982, p. 79*).
2. The Ministry of Health, which accounts for 70 percent of all government spending on health, received 4.2 percent of the total national government appropriations in 1985. Using 1978 prices, the appropriation for health services from 1978 to 1984 recorded an annual average decrease of 1.8 percent (*NEDA 1985 b, p. 49*).
3. Allocation of MOH expenditures by region in 1981 shows that on the basis of the ratio of regional expenditures to regional population, expenditures were inequitably distributed in favor of six out of 13 regions. By nature of inputs, supplies and materials (including drugs) received the largest share (40 percent), with personnel services coming in as the second largest component (37 percent) for the same period *(World Bank 1984, p. 84)*.
4. In terms of nature of services provided, the share of curative services have fluctuated between 51 percent to 61 percent of current operating expenditures from 1980-1986, while expenses for preventive services for the same period decreased from 48 percent to 38 percent.
5. The Family Income and Expenditure Survey (FIES) indicated that 1.9 percent of total family expenditures were set aside for medical care. This figure is not significantly higher than the 1.8 percent recorded for 1971 (*NEDA 1982 a*).
6. Total personal consumption on medical care increased from P1.47 billion in 1977 to P1.69 billion in 1980, although as a proportion to total expenditures, medical care expenditures remained constant (*NEDA 1982 a, p. 80*).
7. In 1982, about P80 million or 3 percent of MOH appropriations were financed by foreign grants and loans; 21 percent of this was spent on capital expenditures alone.
8. Aside from the budget, 90 percent of MOH resources came from fees for hospital services. From 1978 to 1982, however, the proportion of current MOH expenditures received through service charges has fallen from 14 percent in 1978 to 8 percent in 1982 (*World Bank 1984, p. 90*).

PUBLIC/PRIVATE RESOURCES. It will be noted that except for the data on individual and household expenditures, nothing substantial can be said

about the performance or costs of the medical institutions operating for profit within the health sector. This is because while there are organized data on the public sector, information on the operations and performance of the private sector is hardly available. This is not an uncommon problem encountered by health financing researchers in developing countries.

A welcome contribution that lessens the paucity of work in this area is Charles Griffin and Vicente Paqueo's 1986 paper on public and private medical resources and health expenditures in the Philippines. By organizing publicly available data on the health sector, their paper described the country's medical system, traced its historical development, and then analyzed the distribution of its facilities. After exan ning trend data on government resources and expenditures, they observed that:

1. The private medical sector in the Philippines accounts for at least two-thirds of health facilities and expenditures. This sector led an enormous expansion and diffusion of hospital based resources from 1972 to 1983.
2. MOH per capita costs in constant 1972 prices rose from ₱5.61 in 1961 to ₱7.98 in 1980.
3. National expenditure surveys indicate that both rural and urban households spent slightly less than 2.0 percent of their budgets in medical services, with two-thirds of private expenditures going to the providers and hospitals.
4. Two-thirds of medical expenditures originated in household budgets, not government budgets *(Griffin and Paqueo 1986, p. 33)*.

NATIONAL HEALTH INSURANCE. Individual health needs may be paid for through direct fee for service, availment of the national health insurance or through private medical insurance programs.

The Philippine Medical Care Commission, which was organized in 1969, aims to gradually provide health needs of the population by making available to them a comprehensive package of medical services through the coordinated use of government and private medical facilities. Implemented in two phases, Medicare's Phase I which took effect in 1972 covers regularly employed sector of the population who are also members of the Government Service Insurance System and the Social Security System. Phase II which has been piloted in Bauan, Batangas and in Unisan, Quezon starting 1985, covers the rest of the population. By 1985, Phase I has expanded to 22,783 GSIS and SSS members and their legal dependents, comprising some 43.8 percent of the total population.

Medicare's compulsory contributions of 2.5 percent of the monthly salary are collected through the SSS and the GSIS. Employers shoulder 1.25 percent of the amount with the employees paying the other 1.25 percent.

Since 1975, contribution to MEDICARE has been increasing except in 1984. By 1984, a total of ₱410.4 million in benefit payments was paid from the funds. Of this amount, P239.4 million went to SSS members and the remaining ₱171.0 million to GSIS *(NEDA 1985 a, p. 31)*.

Despite increases in its monthly contribution which resulted in GSIS and SSS members doubling their average contributions between 1972 and 1981, medicare contributions' real value fell by 40 percent *(World Bank 1984, p. 91)*. In 1980, a Philippine Hospital Association study disclosed that 54 percent of total accommodations in private hospitals and 60 percent of government patients are medicare beneficiaries. The same study likewise showed that the proportion of hospitalization cost subsidized by Medicare has gone down to 28 percent from the target 70 percent of cost which the program originally intended to subsidize *(NEDA 1982 a, p. 86)*. More recently, a newspaper item cited the MOH Deputy Minister's announcement of a proposed increase in Medicare benefits of between 30 to 40 percent. It was estimated that Medicare pays only 25 percent of the hospital expenses of its more than 20 million beneficiaries *(Malaya November 28, 1986, p. 3)*.

The Medical Care Health Insurance Fund managed by the Philippine Medical Care Commission reported a cumulative collection of ₱3.6 M and a cumulative disbursement of ₱2.9 M as of 1983. Cumulative number of beneficiaries served added up to 11.6 M in 1983 and average peso value of claims processed is estimated at ₱273.98 for the same year *(NCSO 1985, p. 298)*.

Griffin, Akin, *et al*, in their description and analysis of the Philippine Medical Care Plans, noted that even if the Medicare's real benefits and contributions contracted, they still comprise a significant component of the Philippine health care system in absolute terms. Using World Bank figures, they computed Medicare's share of the health sector:

> *"The national government allocated ₱2,216 M to health programs in 1981, of which ₱1,814 M went to MOH. Private expenditures in 1980 on medical care were 4,988 million pesos, of which approximately 55 percent (2,743.4) was spent on hospital and physician fees. In 1981, contributions to Medicare were 495 million pesos. Claims payments were 340 million. Medicare contribution which represent health expenditures to those paying represented 18 percent of present expenditures on hospitals and physicians in 1980 and 27 percent of the 1981 MOH budget. Therefore, while the real value of Medicare value benefits has declined, the program's receipts still account for about a fifth of all expenditures in hospitals and physician services and about 6.5 percent of all health related expenditures in the Philippines (Griffin, Akin, et al. 1985, p. 17).*

Using sample claims for GSIS and SSS, this same study examined the

characteristics of participants in these two programs, looking into the nature of diseases for which medical services were sought, claims payment and the hospital utilization patterns evident among these members. Interesting findings of this survey indicated that:

1) Medicare patients seem to strongly prefer use of private hospitals except when income or absence of required facilities work against this preference.

2) Medicare's existing fee structure is not only regressive but highly inelastic as well. Because the fee structure remains constant, after a certain level of income, payments as a percentage of income fall beyond the top bracket of the contribution scale.

3) The Medicare system is completely oriented towards curative care and hospitalization (*Griffin, Akin, et. al 1985, pp. 34 & 37*).

The influence of Medicare's coverage on a sick person's decision on who among medical practitioners is clearly discussed in another study which analyzes 1983 household and community data from the Bicol region. Schwartz, Akin, *et. al* discovered that while electrification, barangay health aids and barangay health stations are predictors of the choice of practitioners for sick adults, the most important explanatory variables appear to be the perceived seriousness of the illness and whether the person is covered by Medicare. A seriously-ill person with Medicare coverage is more likely to select a private modern practitioner. (*Schwartz, Akin, et. al 1985, p. 11*). Beyond this finding, it can be concluded that a decision like this occurs not simply because of Medicare coverage but the fact that this person is likely to be regularly employed, with some form of stable income and can therefore afford to pay hospitalization fees.

Outside of Medicare's financial support for their medical needs, SSS and GSIS members can avail of sickness and disability related benefits meant to replace lost income of individuals as a result of sickness. GSIS and SSS provide that sickness and income benefits shall not be less then ₱4.00 and not more than ₱20.00/day. Members may qualify for these benefits only if their confinement last at least 4 days and the workers have used up their sick leave credits. In 1984, SSS paid a total of ₱259 million for health related benefits. This constituted 25 percent of the total benefits for the year (*NEDA 1985 a, pp. 45-46*).

Private insurance companies also constitute another avenue for financing medical expenses of the population. As of the end of 1983, there were 99 authorized private companies offering health and accident insurance in the Philippines, 82 of which are domestic, 13 are foreign companies and 4 are professional reinsurers. Total claims on health and accident insurance for the same period added up to ₱65.8 million as against premiums of ₱143.7 million (*NEDA 1985, p. 46*).

COMMUNITY/PRIMARY HEALTH CARE FINANCING. The adoption of primary health care as the government's major approach to the delivery of health services ushered in the stress on self-reliance and concomitant values such as affordability, appropriate technology and mobilization of local resources to fulfill the community's health needs. In keeping with this philosophy, primary health care activities of communities are gauged in accordance with the community and the government's capacity to sustain these activities.

To ensure that local conditions will be adequately responded to, local communities were given leeway to decide for themselves how to raise resources to support their basic health needs. Within the confines of smaller communities, the matching of health needs and resources may be less complicated, thus more manageable. There is a need, however, to coordinate and synchronize these community efforts on a nation-wide basis to ensure complementation of community, public and private financing sources.

Meanwhile, as more case studies describing various experiences on community financing come to light, two observations seem to characterize these experiences:

1. The "resource gap" between costs of primary health care and expenditures being made for primary health care has become clearer, and
2. While central government serves as the principal source of financing for the extension of primary health care, studies show that non-governmental expenditures for health were sizeable. These expenditures were also found to support private curative services instead of promotive or preventive services (*Russell and Reynolds, undated, p. 11*).

These issues required that there should be more systematic monitoring and documentation of the experiences of communities in mobilizing resources, whether in the form of cash or in kind, to support, partly or fully, basic preventive or curative health services for its members.

USAID PRIMARY HEALTH CARE FINANCING PROJECT. Two years after the government formally launched the national primary health care program in the Philippines in 1981, USAID introduced its Primary Health Care Financing Project. This project triggered considerable interest and initiated pioneering studies in community and primary health care financing in the Philippines.

Scheduled for implementation by July, 1983, this project aimed at "increasing access to and utilization of sustainable primary health care services managed and financed by communities and the Philippine government" *(USAID 1983, p. 5)*. The project sought to accomplish these

goals through three sets of interrelated activities: (a) the pilot testing of various kinds of health financing schemes in different parts of the country and with diverse groups and institutions; (b) special studies and policy analysis on public and private health sector financing, the operation of village drugstores, assessment of the barangay health volunteers program and the performance of midwives; and (c) a service delivery component which will seek to strengthen MOH's institutional capacity *(USAID 1983, pp. 7-19).*

At least five research reports/ publications on health care financing were done in preparation for, and in connection with, or as part of this project.

The first is a study on the health seeking behavior and expenditure patterns for primary health care in Cabagan, Isabela. A survey of 146 household heads in three barangays, looked into the factors that affected patterns of expenditures in a rural community with reference to respiratory and gastrointestinal conditions in children below 6 years old, infant nutrition, maternity care and child immunization and family planning.

The research revealed that there was a high (81.8 percent) incidence rate of gastrointestinal and respiratory diseases in the under-six age group. To deal with these cases, households in Cabagan resort to over-the-counter medication and home remedies. Moreover, utilization of curative care services indicates preference for highly specialized, modern curative services, i.e., professionals rather than traditional providers, private more than public services and physicians rather than lower level health professionals.

This study, likewise shows that " ... health seeking for curative care is crisis oriented. Factors related to the patterns of use of health providers are competence, accessibility and economic consideration .. The mean monthly expenditures for respiratory and gastroenteritis conditions in children under six years is ₱7.40. This is approximately 2.3 percent of the household income. Factors that tend to show positive correlation with cost are the type of health providers sought, accessibility of health services and the perceived seriousness of the disease" (*Lariosa 1982, pp. 136, 151*).

The second research report commissioned as part of the preparation for the USAID primary health care financing project was an exploratory study on local resource utilization schemes for selected community-based primary health care projects. It documented seven cases, representing various forms of local resource mobilization and utilization schemes and focused on the kinds of health services supported, the degree of people's participation in the schemes, the "hidden" costs involved and the resources coming from external resources which were used to augment locally generated funds/ support (*Alfiler 1982*).

This study shows that local resources utilization schemes for community-based programs in health tend to be one-shot in nature and consist of irregular fund-raising activities initiated and implemented by community organizations. Resources mobilized through these efforts tend to be meager

and limited mostly to financing the purchase of drugs. There are existing insurance schemes for those who are under-or unemployed but they are too complicated for the communities to manage for themselves. These schemes also tend to generate limited resources which are grossly inadequate to cover costs of comprehensive medical services necessary at the community level. This means that the resources generated will have to be supplemented with additional resources if they must support the provision of adequate health services to community-based programs (*Alfiler 1982, p. 74*).

A third study which was done in connection with, but not supported solely by, USAID was a two year operations research project funded by Primary Health Care Operations Research (PRICOR) and carried out in six villages in Iloilo (also the site of another USAID project, the Panay Unified Services for Health) (*Osteria and Siason, undated*).

This research sought active community involvement in determining the nature of the financing schemes and how these could be set up and managed. The financing scheme which the six villages eventually chose was the contribution of a flat rate on a monthly basis and the voluntary contribution from proceeds of sales and farm produce and livestock as well as the donation of services. Except for one barangay which opted to use its contribution as an emergency loan fund, all other barangays decided to use the money raised to finance the operations of a village drugstore. Contributions collected from the households ranged from ₱2.50 to ₱7.09. After a year of operations, the various village drugstores realized profits ranging from ₱120.54 to ₱567.02 (*Osteria and Siason, undated, pp. 102 and 159*).

The outcome of this research underscores the need to keep structures for financial schemes in rural areas simple enough for participant-members to understand what they are paying for, how they will be benefited and what control measures are adopted to safeguard their contributions. This experience also indicates that single payment schedules may be more efficient if no collection system is firmly established to attend to payment spread over an extended time period (*Osteria and Siason, undated, p. 99*).

An evaluation of the performance of the government's *Botika Sa Barangay* program, the fourth study, represents one of the special studies completed under the USAID Primary Health Care Financing Project. This study was undertaken to test the assumptions that the Ministry of Health's *Botika sa Barangay* (Village Drugstore) program will succeed to make essential drugs accessible and affordable to the community only if this program operates as a community-based business enterprise able to generate sufficient operating funds to finance the regular replenishment of stocks (*ARC Associates 1985, p. 6*).

The profile of a viable (able to generate funds for continuous operations) and effective (can provide majority of village residents access to needed drugs at a price they can afford) village drugstore turned out to be

one which: 1) has a capitalization of about ₱700.00: 2) generates an annual sale of P1,334.00; 3) observes a 24 percent mark-up on its sale price; 4) is part of a general or community store that operates in the area; and 5) is managed by a *Botika Sa Barangay* aide who is knowledgeable in dispensing medicine and belongs to a household with a relatively higher income level.

A major component of the USAID primary health care financing project is the design and piloting of innovative health care financing schemes which may be replicated if found workable. Deliberations on the merit of four proposals submitted to the Philippine Council for Health Research and Development (PCHRD) were the objectives of a Seminar-Workshop on Health Care Financing sponsored by the USAID and the PCHRD.

The financing schemes considered for possible funding were those which explored the use of four prospective financing models: a) community based, b) government/hospital based, c) enterprise based, and d) the health maintenance organization. The published proceedings of this seminar-workshop present the strengths and weaknesses of these four proposals at least in the form they were initially presented for possible funding (*Philippine Council for Health Research and Development 1985, pp. 93-110*).

Two demand studies utilizing data from the 1978 and 1981 Bicol multipurpose surveys tested the extent to which factors such as distance, income, time and cash costs affect the demand for health care services in the Bicol Region. Using the 1978 survey data, Ching disclosed that neither income nor cost deterred the poor from availing of public health care services. However, those with lower income tend to show lower utilization of modern private facilities (*Ching 1986, pp. 149-150*).

On the basis of their analysis of the 1981 Bicol multipurpose supplemental survey data, Akin *et. al* disclosed that visit price, drug costs, transport costs, transport time and waiting did not greatly affect demand patterns for essential or optional health services (*Akin 1986, p. 773*). Akin likewise noted that instead of serving the poorer sections of the population, free government clinics appear to serve many higher income patients. Moreover, he argued that it may be knowledge and outlook and not poverty which keep the poor from using modern health service (*Akin 1986, p. 774*).

V. RESEARCH AND POLICY IMPLICATIONS

What do the findings of all these studies imply for research priorities in health care financing?

The earlier notion that there is hardly any empirical research on health care financing and related topics in the Philippine is hardly reliable. It is clear that there is a small but steadily growing local literature on the subject. Valuable data on public health services are available but they need to be organized and analyzed to provide the answers to policy questions. Like most developing countries, there is virtually no systematic collection of data

on the operations and costs of health services provided by the private sector in the Philippines.

It is interesting to note that external funding agencies (World Bank, USAID, Asian Development Bank) play a conspicuously active role in directing attention to our initiating studies on health care financing in the Philippines. This phenomenon may merely signal a current international interest in health among financial institutions. However, this may also be indicative of the low level of priority attached to health financing by health administrators in developing countries like the Philippines. This may also be largely because, when confronted with so much demand for very limited resources, health administrators would rather use these resources for delivery of services rather than for research activities.

Could the strong presence of international institutions in this field also suggest the relatively limited appreciation for comprehensive sector-wide planning and prioritization of resources and expenses among health administrators in developing countries like the Philippines? Health financing is only one of the tools for bringing about the state's policy on the desired allocation of health resources and services. Yet, even before this tool can be utilized for meaningful policy analysis, a reliable data base must systematically produce the information which will allow periodic analysis of expenditures and sources of finances in both the private and public sectors.

For this purpose, the following areas for policy research are forwarded assuming that health administrators and planners will now imbibe the comprehensive sector-wide perspective necessary in any significant analysis of health financing sources as a means of effecting greater equity and efficiency in funding, distribution and provision of health services:

1) The development of a low cost health financing information system that will utilize most of the data that are produced by existing management information and accounting systems being observed in public and private institutions. More time and effort may have to be devoted to the private sector since it is in this area where data is most scarce.
2) If the utilization of existing information systems for both public and private sectors is not feasible, a basic financial data collection system which will maximize use of data produced in private hospitals and other health institutions can be devised to allow comparisons across institutions over time. In setting up this system, emphasis may be given to broad orders of magnitude rather than precise accounting for each source of funds.
3) Once this data collection system is in place, it can be used as a benchmark for policy studies which can seek to:

    3.1 identify areas where the nature, size or appropriateness of finances promote or frustrate health policy objectives;

3.2 show where resources could be used more efficiently;
3.3 demonstrate any lack of equity in the use of resources in the public or private sectors;
3.4 draw attention to alternative ways of tapping resources;
3.5 determine the gap between the financial resources likely to be obtained and the resources needed to move towards certain goals. (*Mach and Abel-Smith 1983: 14*).

4) The studies reviewed above already indicate certain characteristics of the existing health financing systems, i.e., the regressive nature of the MEDICARE, the factors which determine the demand for public and private health services in certain regions of the country, the levels and sources of funds raised by communities. Policymakers can start determining whether these findings constitute adequate basis for policy review and revision.

A final note of caution may be in order for this review. The determination of the monetary value of the public and private resources that go into the production of health services will definitely help in the estimation of how much funds will be necessary to provide these services. It is hoped however that the generation of this information will lead to greater equity in the distribution of resources rather than intensify the current tendency to commodify health services and thus render them even more inaccessible to the greater majority of the Filipino.

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